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THE OFFICIAL AMSTRAD CPC MAGAZINE

JANUARY 1990
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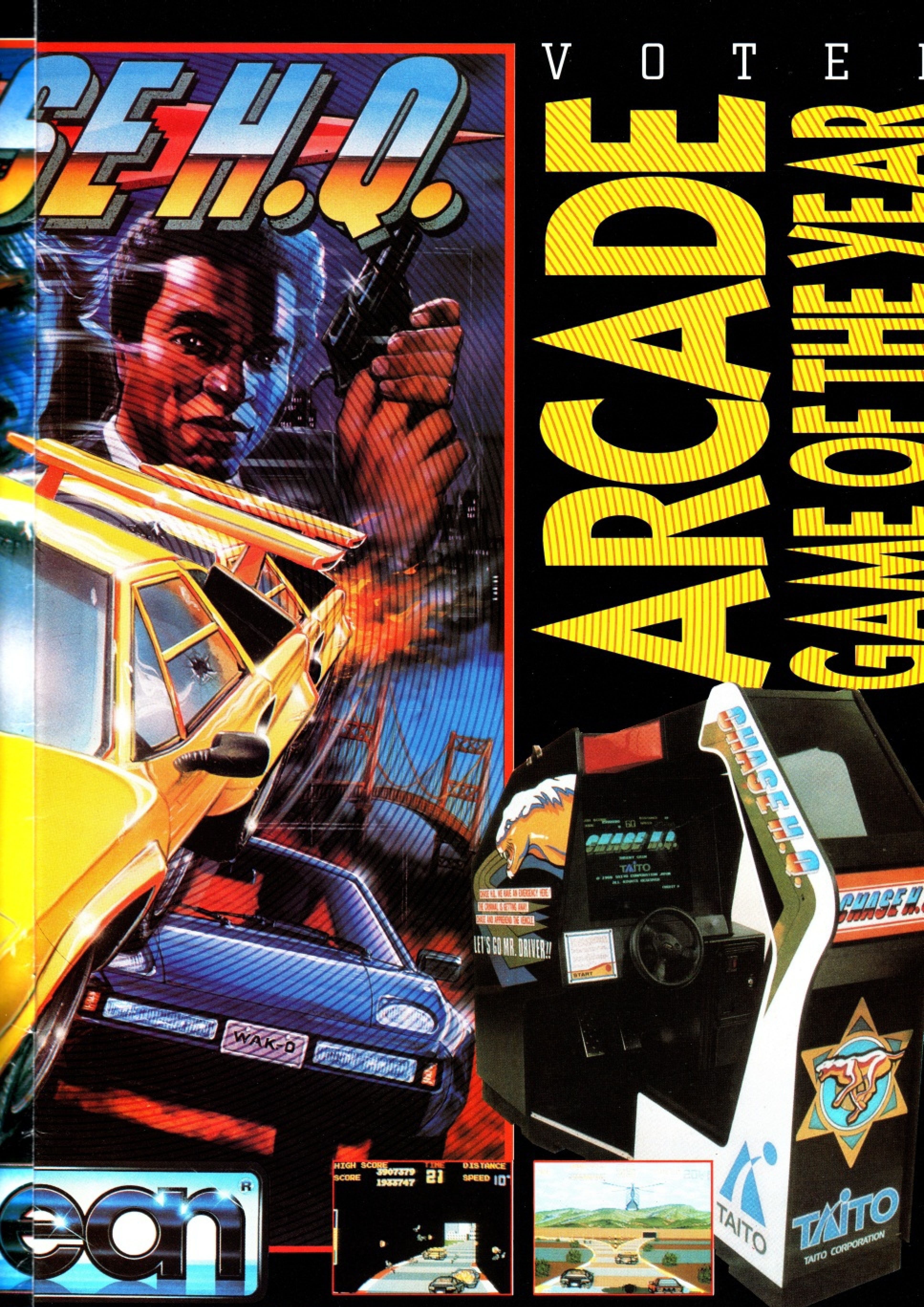


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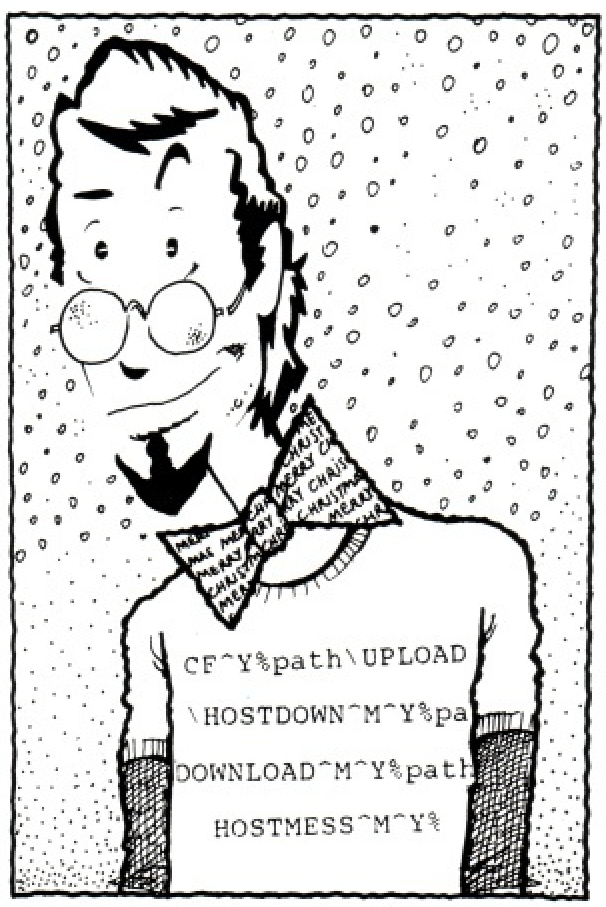

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REGULARS



David Dorn is unable to provide his Applications Advice column this month due to illness. We wish him a speedy recovery and hope to have an extra large advice column in next month's issue.

FEATURES

LETTERS



Let's split

I was wondering if it is possible to split the screen into two modes at the same time on the CPC6128.

If it is so, can you please tell me how?

In the game *Into the eagle's nest*, the screen is in mode 1 and 0 together.

Stian Saether,
18 Skoglund veien,
N-1990 Soerum.

ACU: Splitting the screen requires a little knowledge of machine code. The technique used is to count the raster scans and when they are in the desired position switch modes. If Auntie John is reading this he may like to take this a little further in his next column.

Fractal fun

Seeing your article on fractal landscapes in the November issue prompts me to suggest that anyone who found it interesting might also be interested in 'Fractal Report', a newsletter dealing exclusively with the subject of fractals and mathematical chaos. This is published six times a year by Reeves Telecommunications Laboratories Ltd., West Towan House, Porthtowan, Cornwall TR4 8AX.

R J F Stewart,
Waterloo,
Liverpool.

Not happy

I own a CPC 6128 and buy all my games software on disc, mainly for fast loading reasons. It seems to me that the vast majority of information for pokes, in your ACU magazine column, is for tapes and not discs. Why is this? Is it not easy or possible to 'poke' discs direct?

As a disc user is it possible for me, and others like me, to make use of the pokes for 'tape' which saturate your ACU columns? A potential, but frustrated hacker.

Alf Garnett,
Oldham,
Lancashire.

ACU: Old Hairy receives his pokes from the readership so if you desire more disc based pokes send some in and start a new trend.

Frustrated

Generally I think your magazine is very good but! I am not happy with the ten 10 liners. I joined the user club in April 1989 the only one that has worked for me so far was Meteor Storm by David Hall.

Dean Stilwell
Southfields,
London.

ACU: Each 10-liner is tested on a 464 and a 6128 and a listing produced from the working program which is then photographed and used as artwork. Using this procedure all listings should work and be free of mistakes.

What robot?

I am currently in my second year of GCSE courses. For technology I must make a useful electronic circuit, for my project. Because I have got an Amstrad CPC computer, I have decided to build a simple robot of some sort and link it to my Amstrad CPC computer, or a BBC 'B' model, at school. At present I have few ideas and plans for a robot. If you could help, by sending some plans and ideas for robots or other computer controlled devices, I would be very grateful.

Peter Minnikin,
East Boldon,
Tyne & Wear.

ACU: If you look in the Maplin catalogue you will see a few robotics books. Some of these give full construction techniques and should be right up your street.

Easy, please

My parents have just bought me an Amstrad and I have been looking for a magazine for the computer for quite some time. After buying your magazine I was very impressed by the cheap rate computer software, but for people that have only been with computers for a little time the words were hard to understand. Do you think you could please in future make it a bit easier to understand as this would be appreciated by myself and many others.

Neil Markwell,
Ipswich.

ACU: What you really need is a beginners column for I think it unwise to tempt the wrath of the readers who are into the heavy side of the CPC.

Cough up

Firstly, I would like to say how brilliant your mag is. Before I subscribed, I bought a copy of *Amstrad Action*. Although it was bigger than your magazine and had a cassette on the cover, it didn't compare with your mag. ACU has that certain quality that AA doesn't have.

Secondly, I would like to see cover mounted cassettes on the cover of your mag. I sometimes go into the newsagents and see all the Spectrum mags such as *Crash* and *Sinclair User* with big, beefy cassettes on the covers with at least one full game and loads of demos. Even AA has the occasional cassette. Why not you? I think that this is the only element missing from a cool magazine.

Matthew Norrie,
Turriff,
Aberdeenshire.

ACU: We are looking into the possibility of producing such a cassette in the near future. We hope you all like the fab free poster last month.

Lock it up

I am writing to you to see if you could help me with my GCSE Design and Realisation (CDT) coursework. I am planning to make a security lock that will fix my computer to my computer table.

I hope you can give me some information on any security locks like I mentioned above which you know about.

Glenn Richardson,
Eastleigh.

ACU: The PC Show would have been an ideal place to see such devices as the software houses attempted to keep their machines intact in the crush, alternatively you can check out this month's news for a likely looking device.

Clever clogs

I am 12 years old and have an Amstrad CPC 464. One of my games is 'Beyond the Ice Palace'. In your October issue you reviewed 'Story So Far – Vol 2'. According to the reviewer 'Beyond the Ice Palace' had 3 different weapons. It actually has 4.

Iain Gibson,
Glasgow.

ACU: We will immediately take that fourth weapon and show the reviewer the error of his ways.

In control

I would like to know if there is any way of inserting a program into the computer, so when the machine is switched on, it asks you to input the code and if you fail to type in the corresponding code for the second time, the program will not let you use the computer.

Also if it is possible to put this program in the RAM, I would like to know if there is a way for being able to switch on/off this program, so that I can control the time that children play games.

Babak Sufi,
Marbella,
Spain.

ACU: The program is feasible but placing it in RAM would mean it would be lost every time the machine was turned off and it could easily be overwritten by other programs. A far simpler solution would be to remove the fuse from the plug or hide all the joysticks.

Don't go

I have owned an Amstrad CPC 6128 now for almost 3 years. This is my third computer, the first being the ZX81 followed by the Texas 99/4A, then of course the Amstrad. It appears to me that the CPC range of computers are no longer in production. If this is correct, how long before any back up, and in fact your very excellent mag, cease to exist as happened for my previous two machines.

J Walton,
Manchester.

ACU: The CPC is most certainly still in production and will remain popular for as long as people like yourself support it. If you continue to buy ACU we will continue to produce it. That's about it really.

Testing time

In "Typing Test" by Gillian Freeman, the algorithm in line 40 is rather hard on the typist. If the passage is typed perfectly, except that either an extra letter is typed or one omitted at the beginning, then every letter is judged to be a mistake! Try again Gillian.

In "Temperature" by Daniel Tankowski (Jankowski?), in line 50, that part of the equation t-273.15 requires to be enclosed between brackets.

Cyril Hartley,
Irby, Wirral.

Less trivia

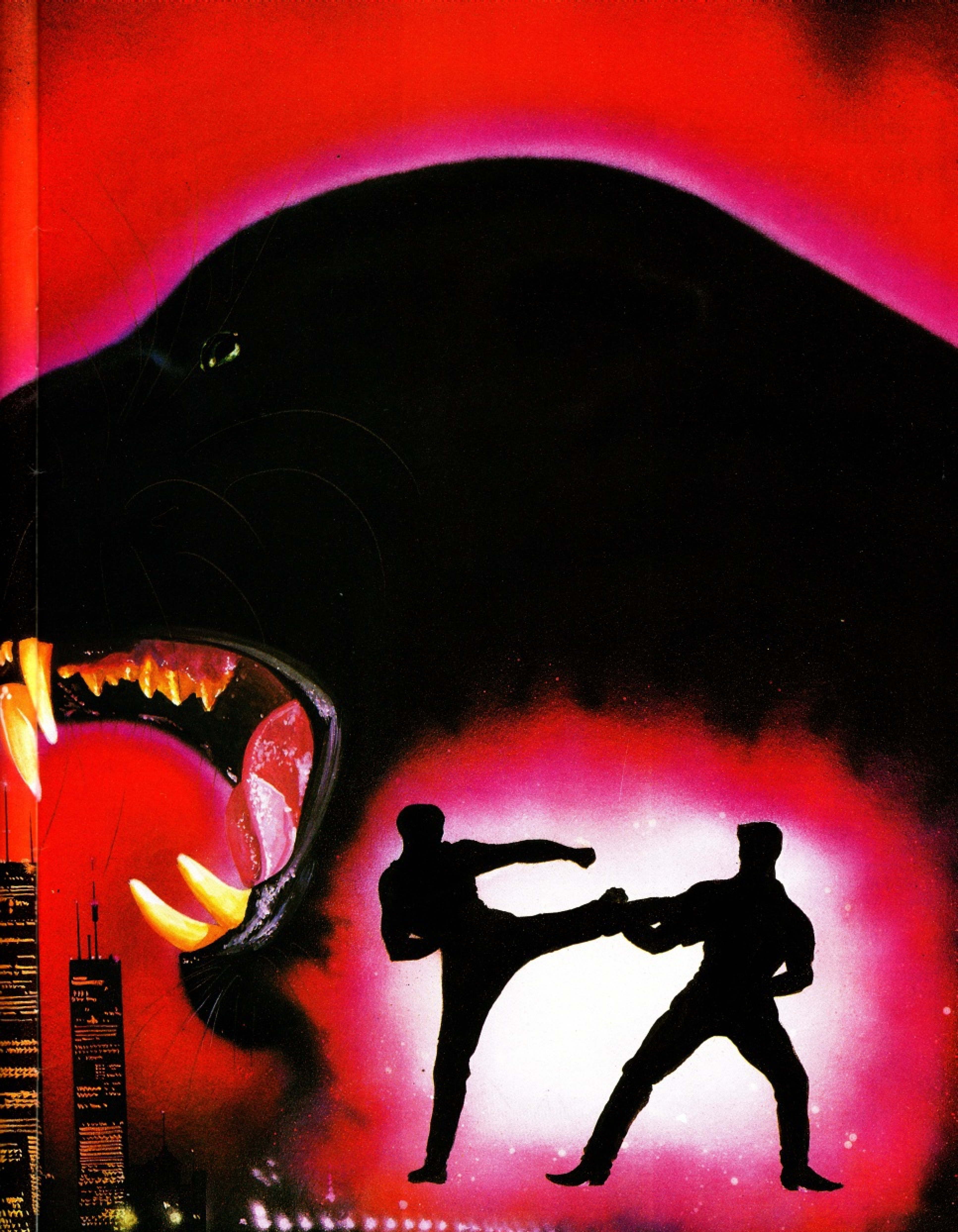
I am a pensioner and I bought a 6128 a few months ago to keep my mind occupied. I have been reading your magazine, among others, ever since.

There does not seem to be a magazine which deals with the serious side of computing at a level which can be understood by beginners such as myself.

Arthur Pewty,
Birkenhead.

ACU: There are plans to start introducing increasingly varied computer issues, reviews, round ups and features, perhaps at the expense of some of the more trivial elements of the magazine.


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Stereotypes in software under attack

A fight against stereotypes in computer software has emerged in the form of OASIS. The National Organisation Against Sexism in Software celebrated its first birthday in October and has established itself as a name in software pressure groups.

Campaigning against sexism in both advertising and computer games, OASIS attempts to increase awareness of the sometimes blatant stereotyping of men and women. The task it seems is a considerable one, especially for a small organisation. Sandra Vogel, the founder of OASIS runs the ship single-handed but embraces applications for membership which costs £3.

Members will receive six magazines a year including lists of recommended software, a comprehensive list of organisations within the computing arena and a list of useful publications such as Amstrad Computer User.

With most of today's software written in the United States, the chances of OASIS nipping the sexist programmers in the bud are slim. With more members climbing aboard however, OASIS could make serious in-roads on the frollicking fiends of software publishers by attacking the UK software houses and distributors. Sandra Vogel has the determination: "The first year was a test bed. It has proved that there is a need for OASIS in the computer industry. We are here to stay and our next year will see us move up a gear. We have thrown down the gauntlet, who will take it up?"

Contact Sandra Vogel at: 3 Alden Court, Stanley Road, Wimbledon, London SW19 8RD.

At the edge

For those who like to go to the edge and further there is Darius+, another alien experience but with 28 levels of land and sea crawling creatures. As the player represents humanity, the Aliens' hatred is centered on you and only you can stop the rot and put paid to the over-sized, ferocious aliens. Let us hope it is not too predictable.

More joy

Just when you think you are happy with a joystick, another more advanced, ultra-sensitive, multi-microswitched model appears in the shops. This month it is the availability of the Delta 2000 joystick that catches the eye.

Looking like a mouse with a screwdriver in its back, the unusually-shaped Delta Joystick offers the user a smooth, accurate action, two fire buttons and an autofire option. Priced at £9.95 this little beauty seems an ideal Christmas gift for game freaks.



Complete control with the Delta 2000.

DTP delight

SD Microsystems has released Page Publisher, an affordable DTP package for the 128K Amstrad CPC. As an icon/menu driven package, it can handle both text and graphics layout from a single program.

There are three built-in fonts plus a font editor for the text with a number of editing options including margins, column markers, auto word-wrap, normal or reverse video and multiple columns. The graphics option offers a choice of ten pens and 50 brush patterns with an adequate option of image controls.

The Preview Page selection allows you to preview your work and enable you to judge positioning more accurately. This is just one of the utilities provided. Filing commands and certain printer options are also available.

Page Publisher is priced at £19.95 if ordered before February 1 and is available from SD Microsystems on 0462 675106.

Under attack

Continuing on the theme of computer organisations, The Computer Users Forum has released news of its monitoring of virus and hacker hypes over the past two years. The CUF emphasises its independence from software and hardware manufacturers but boasts a membership of about 4,000 individual and corporate members.

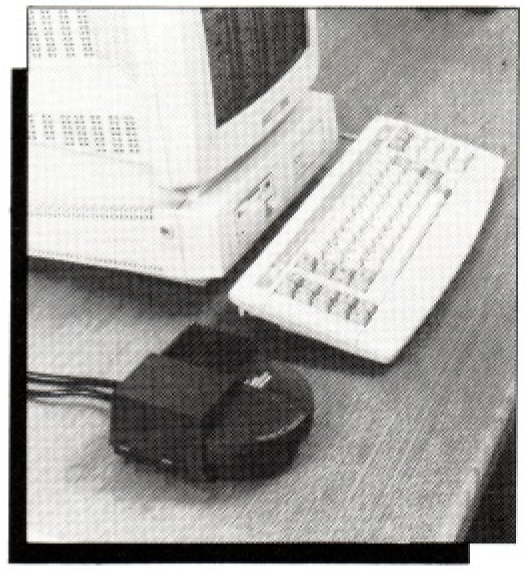
Concentrating on the misuse of computers, the CUF has been responsible for warning the public of the recent virus attacks and the dangerous significance of hacking. The chairman of the CUF, S. Parvez Syed, claims that this present hype (13th of never global virus) will end in January 1990 for at least a few months. Contact the CUF on 01-689 3147.

Two tempting tomes from Titan

With winter upon us, perhaps it is time to stay in bed with a cup of cocoa and curl up with one of the publications on offer from Titan Books. Thieves' World book 7 has reached the shelves under the guise of The Dead Of Winter. Do not however, let the title scare you into hiding. The book continues the fantasy theme of the series with a world called Sanctuary, where the dead are beginning to outnumber the living. With a serious population problem and the threat of the Rankan Empire, it seems the scene is set for a yarn that will spin you into a worm.

The second publication involves more deeply subconscious goings-on with the third in the series of Wild Cards. Jokers Wild is set 40 years on from the Wild Card virus that helped shape the world after World War II with superpowered Aces and disfigured Jokers. The Wild Cards Day celebrations in Manhattan are interrupted by 24 hours of death and destruction with both the Aces and Jokers battling it out for a full hand.

Priced at £3.99 and £3.95 respectively, the books are available from most leading book stores.



Making the connection with Datalink.

Linking up

Verran Electronics has released the Verran AC Datalink which provides Amstrad users a freedom to connect any type of computer of peripheral via an existing electrical circuit. Priced at £175 each, the AC Datalinks allow several PCs to be linked to a peripheral such as a modem, without the expense of dedicated cabling.

Ray Johnson, the chairman for Verran Electronics claims that "the AC Datalink will be the computer product of the '90s." It is a tall claim although many companies have tried to market high quality, through-the-mains connections in the past and failed. It remains to be seen how the Verran offering will develop.

Congratulations

Congratulations to Mr Martin Roberts who has won Focus Magazines' PC Show prize draw for the Amstrad PC2086 HD CD. Mr Roberts is an IT support officer for ILEA at County Hall and will undoubtedly put the Sugar machine to good use.

Safety first

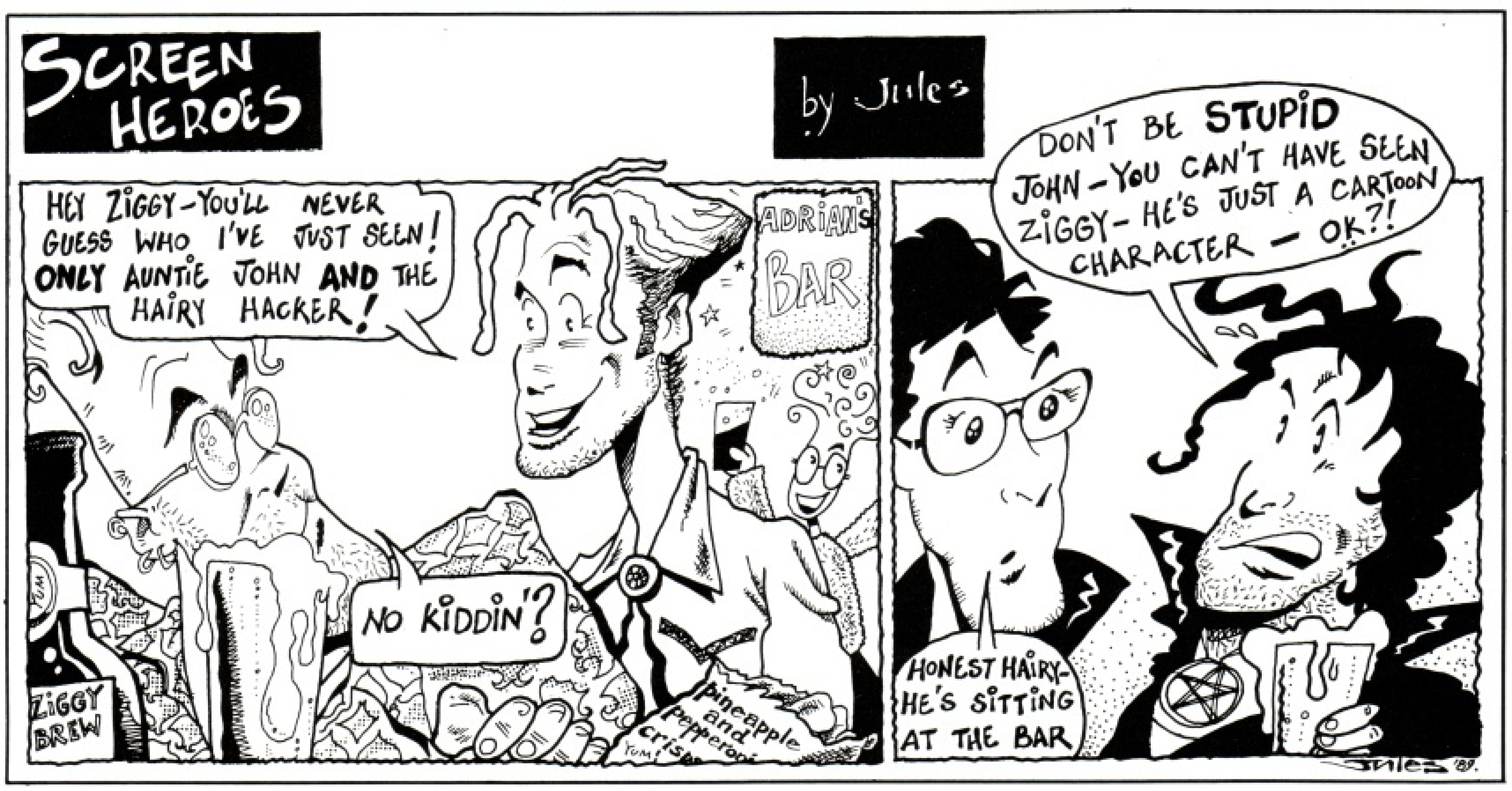
Homeguard UK has released an 'Audio and Video' anti-theft alarm for those with a nervous disposition. The compact security unit is designed to protect appliances that are permanently connected to the mains, which is incidentally a fire hazard.

Based on an electromagnetic current sensing strip, the unit detects the absence of electrical power in the event of the appliance being removed from its point of rest. The ensuing result is a loud, piercing alarm that sounds for 45 seconds.

Priced at £14.95 the unit is a safe bet for security buffs.

INDIANA JONES COMPETITION WINNER

The winner of the Indiana Jones hat and whip is Isobel Why from Elstree, in Hertfordshire. Congratulations Isobel and good luck with the crusades. Twenty-five runners-up will receive T-shirts and games.





You have to be in it to win it – never more so than this month when the first ten correct answers to the questions below will receive a Ghostbusters T-shirt that glows in the dark, a huge Ghostbusters poster and five super stickers. These prizes are the generous contribution of those guys and gals down at Activision – whose Ghostbusters II game is reviewed in ACU next month. Anything else? Oh yes, those questions:

1. Who composed the original Ghostbusters theme tune?

2. Which rappers had a minor hit with a song from the second movie?

3. In which town are both films set?

The editor's decision is final.
Entries to:
A Ghost of a Chance
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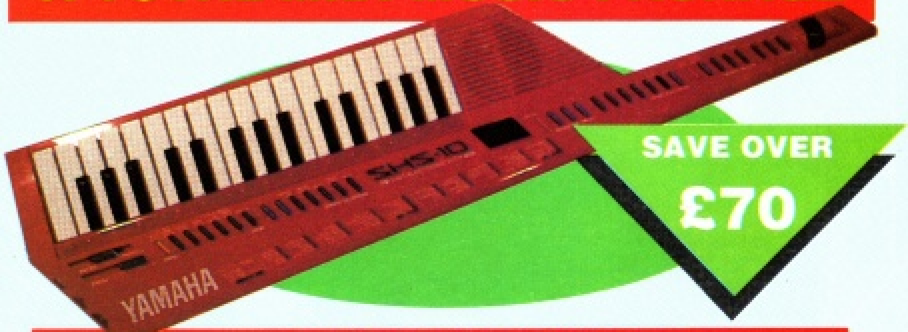
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464 owners must already have at least one Amstrad drive.

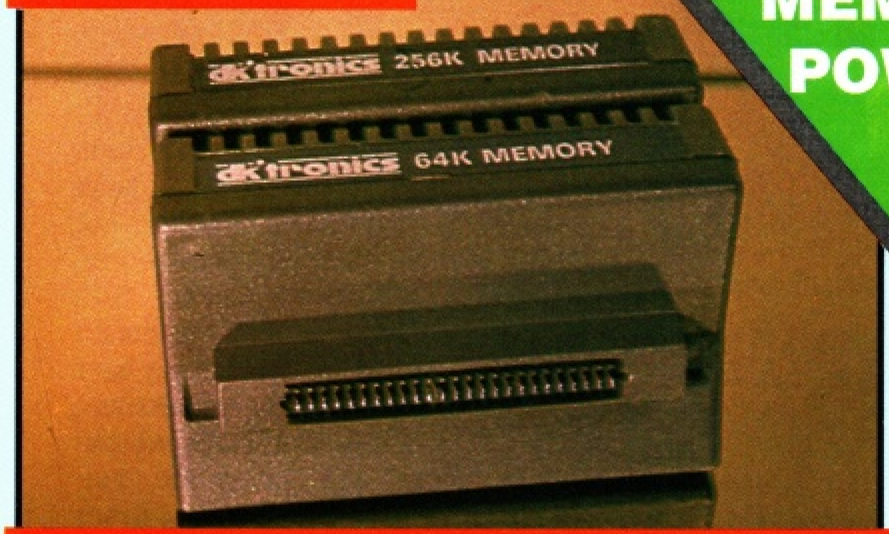
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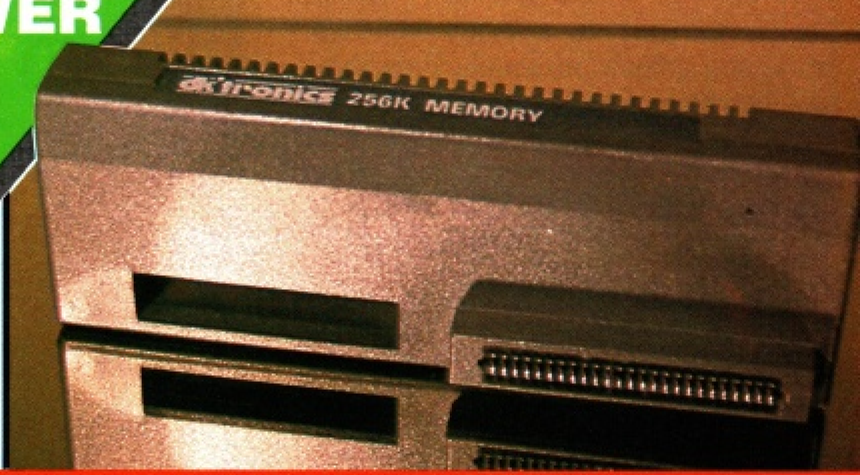
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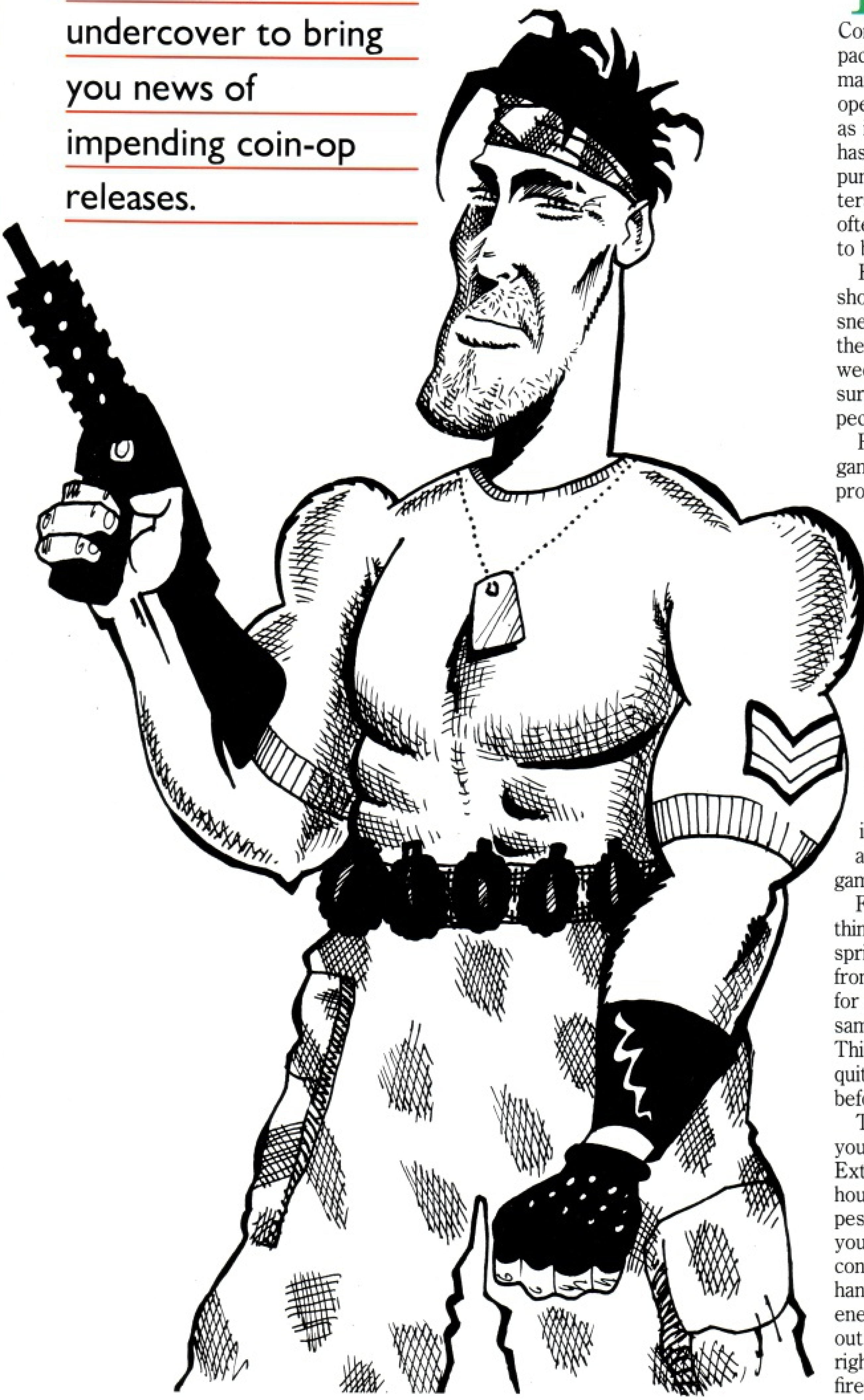
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COMBAT ZONE

John Cook goes undercover to bring you news of impending coin-op releases.



You wouldn't think that the autumn/winter season is a particularly interesting time in the Combat Zone – seaside resorts have packed up until new Easter, with many arcades keeping limited opening hours until then. But not so – as it's the time of year when the trade has a bit of a rest from keeping the punters happy (or keeping the punters from destroying the kit, more often) and starts to think about what to buy for next year.

How? By going to various trade shows, that's how, and we managed to sneak in to the major Autumn show – the Associated Leisure Preview – last week. And there were quite a few surprises in store, as you might expect.

For a start – a name new to video games, although one that has been producing pinball games for many years now – Gottlieb Inc. Gottlieb did have a new pinball table on display of course – it's called *Bonebusters* and isn't at all bad, but the shock was a new video from them called *Exterminator*. Not only is it a surprise to see this company take such a change in direction, but the game itself! We are talking about a game that is seriously different in both style and content to the majority of games around right now.

For a start, the very look of the thing. It looks like the majority of the sprites haven't simply been drawn from scratch – they've been generated for digitised images of real things – the same with most of the backgrounds. This gives the game a look and feel quite unlike anything that has gone before.

The subject matter of the bash – you (or you plus a friend) are an Exterminator, trying to rid the street, house by house, room by room, of pests. Like toy tanks that fire back at you, for instance. And what do you control on screen? A disembodied hand which can make a fist and stamp enemies to bits, grab the flying ones out of the air, or if you have it to the far right or left of the screen, point and fire a stream of green laser fire.

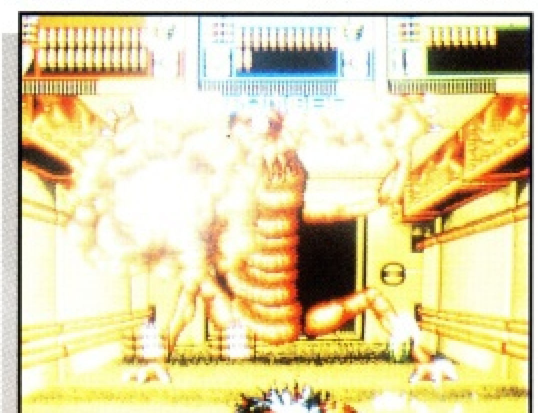
We are talking seriously surreal here, played up against a domestic backdrop, with enemies coming out of the screen at you. At this point, those of us with a weaker grip on reality might well run gibbering from the machine! Difficult to say whether this game is going to be successful, but it's nice to see that at least some people in the business aren't scared of taking the odd risk – 'cos boy, this is an odd risk!

Cow-puchka!!! Sound familiar? OK then – what's green, mutant, very good at martial arts and is only at the very beginning of a 150 year life span?

A *Teenage Mutant Ninja Turtle*, what else? You might have seen the action packed cartoon on telly from time to time, well now it's arrived on the video scene in a four player extravaganza from Konami that is bound to be very popular.

With nine big levels, ranging from the inside of an apartment building to the den of the chief baddie – who is holding a buddy prisoner – the four guys (or should that be amphibians) Rapheal, Leonardo, Donatello, Michaelangelo not forgetting that wonderful ice cream Cornetto (mint choc-chip my favourite!) boldly go forward, sideways, up and down doing what Mutant Ninja Turtles do best . . . taking out loadsa baddies.

Sure, at the end of the day it's just another beat 'em up and heaven knows there's far too many of these around – but the fun element of this game is the licence. The cartoon is a



Exterminate, exterminate.

lorra laffs, so it's quite entertaining to take your favourite character out of it and give the bad guys some stick – well, Bo Staff actually, or Sai, Katana or even Nunchakus, depending on your choice of Turtle.

And to my knowledge, it's the first four player beat 'em up too – not counting the wildly unsuccessful wrestling game, Final Round. Recommended for lightweight enjoyment.



Bust those Beasts.

The big game of the show though, for my money at any rate, had to be the follow-up to *Chase HQ* from Taito, called (with an astonishing degree of imagination, considering) *Special Criminal Investigations*. And believe me, if you liked the original, you are going to go for SCI in a big, big way.

The format of the game has been



In the Line of Fire.

kept very similar, with you taking the part of some cool dude, baggy suited, mirror sunglassed cop and his sidekick, driving a chase for the cops. Like Chase HQ, you are given jobs and have to drive as fast as you can to catch up with the criminal in question, then batter him off the road.

Exactly the same thing happens



The chase is on.

here – the only difference being a fire button on the steering wheel, where you would normally expect the horn to be. Press it and – hey guy – a gunsight appears on the screen and with your character leaning out of the motor in a very acrobatic way, you start taking pot shots at the bad guys!



Teenage Mutant what?

If you have ever had the odd fantasy about appearing in Miami Vice, Special Criminal Investigations brings it that much closer. Don't expect anything much new from SCI, but it has just enough more to ensure it'll be just as big as Chase HQ was in the arcades.

Finally, just when you thought it was safe to flip the safety catch on the Uzi to 'On' – we get some more electronic shooting gallery games. Or should that be electronic firing squads!

SNK, having made a substantial killing (ooops!) with *Mechanised Attack* have now come up with *Beast Busters*, a three player (yes, three!) shoot 'em down, with a theme of the supernatural and slimy – not unlike that of the infamous bad taste game, *Splatterhouse*. Yes, three gun toting maniacs at one time can now blast their way through levels of slime dripping humanoids and assorted weird

looking stuff. Got to be a winner. And then big guys Sega have finally entered the fray – showing off a prototype of *Line of Fire*, a technically impressive but still untimely tedious killing zone. But at least they've got the good commercial sense to pander to the whims of the most gratuitous funsters. In this one there's unlimited ammunition.

That's it for now – until next month, but remember. I know it's Christmas – but none of this festive goodwill to all aliens stuff, OK? I mean, you and your pocketful of 10ps are all that stand between us and global annihilation by awful green things. Alright???!!!!

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SNOW

BY M. WOOD

This demo is not particularly interesting to watch, but is quite fascinating in concept. It actually mimics a television set which is badly in need of a retune. The screen changes from being fuzzy to black, then scrolls and generally looks quite fascinating – it's as though there's a lot of interference.

```
10 'Mark Wood 1989. Broken T.V.Screen Clear for 2min [F1]
20 MODE 0:INK 0,0:PAPER 0:BORDER 0 [99]
30 FOR t=0 TO 15:INK t,0:NEXT t [A4]
40 FOR i=&C000 TO &C000+&3FFF:POKE i,RND*255:NEXT i [DE]
50 SPEED INK 1,1 [3C]
60 FOR y=0 TO 15:INK y,RND*27,RND*27:NEXT y [27]
70 OUT &BD00,INT(RND*255) [7A]
80 BORDER INT(RND*27),INT(RND*27) [71]
90 OUT &BC00,INT(RND*255) [72]
100 GOTO 70 [B8]
```

GAMBLER BY D. HALL

Far be it for us here at ACU to discourage the art of the harmless flutter, so here is something that D. Hall prepared before the show. If you have a passion for laying money on lame animals, try this one. A five robot race where the stakes are high, and the competitors lethargic.

```
10 INK 0,0:MODE 0:PAPER 0:CLS:BORDER 1:k=2:INK 5,15:FOR t=1 TO 24 STEP 4:PEN k:k
=k+1:FOR g=1 TO 19:LOCATE g,t:PRINT CHR$(196):NEXT:N [2C]
EXT:PAPER 12:PEN 9:FOR l=1 TO 21:LOCATE 20,l:PRINT CHR$(233):NEXT:PAPER 0:a$="*
 Future Gambler  *":c=1:LOCATE 1,22:mo=300 [2C]
20 n=10000:FOR m=1 TO 3:READ p$:FOR t=1 TO LEN(p$) STEP 2:POKE n,VAL("&"+MID$(p$
,t,2)):n=n+1:NEXT:NEXT:INK 14,26,15:INK 15,6,15:SPEE [93]
D INK 100,20:FOR t=1 TO LEN(a$):PEN c:PRINT MID$(a$,t,1);:c=c+0.5:NEXT [93]
30 CALL 10000:PAPER 0:LOCATE 1,23:PEN 1:PRINT "MONEY * ";:PEN 3:PRINT "#"mo;:PEN
 1:PRINT "*":LOCATE 7,25:PEN 8:PRINT "(1=Top)":LOCAT [9D]
E 1,24:PRINT "Choose Lane (1-5)  "; [9D]
40 WHILE i$<>"":i$=INKEY$:WEND:WHILE i$="":i$=INKEY$:WEND:PEN 9:IF i$<"1" OR i$>
"5" THEN PRINT CHR$(7);:i$="":GOTO 40 ELSE PRINT i$: [34]
SOUND 1,400,10,15:FOR k=1 TO 1000:NEXT [34]
50 LOCATE 1,24:PRINT STRING$(38," "):LOCATE 1,25:PRINT "(#1 to #100)":LOCATE 1,2
4:PEN 6:LINE INPUT "Place your bet #",na$:na=VAL(na$ [E2]
):IF na<>INT(na) OR na>mo OR na<1 OR na>100 THEN PRINT CHR$(7);:GOTO 50 ELSE LOC
ATE 1,23:PRINT STRING$(58," "):mo=mo-na [E2]
60 LOCATE 1,23:PEN 1:PRINT "MONEY * ";:PEN 3:PRINT "#"mo;:PEN 1:PRINT "*":PEN 11
:PRINT "#"na"bet on lane "i$:CALL 10092:IF PEEK(2500 [2A]
1)=VAL(i$) THEN PRINT "WON":mo=mo+na*(INT(RND(1)*8)+2):IF mo>9999 THEN PEN 14:LO
CATE 2,13:PRINT "YOU ARE A RICH MAN":END [2A]
70 IF PEEK(25000)<>VAL(i$) AND  mo<1 THEN PEN 15:LOCATE 2,13:PRINT "YOU ARE A PO
OR MAN":END:ELSE FOR t=1 TO 3000:NEXT:CALL 10065:GOT [28]
O 30 [28]
80 DATA AF32A86132A9612150C0114001DD21C05D0605DD7401DD7500E5C5CD3B27C1E1DD23DD23
1140011910E9C911B4270E16E506081A77231310FAE1CD26BC0D [A4]
20F0C9DD21C05D0605DD6E00DD6601116428C5CD3E27DD23DD23C110ECC906230EFA000D20FC10F8
ED5F47AF3CFE0628FA10F932A861DD21BE5D8747DD [A4]
90 DATA 2310FCDD6601DD6E0023DD7401DD7500CD3B27DD6601DD6E00110800197EFE0028BF3AA8
6132A961C90000000C0C58A00000000C0F0FB57A0000040F0E0D [87]
3FFF2800040E0D2D3FFF28000D0E0F2D1F2F1E000D0D0F1E0F0F1E000D1C3C3C2D0404000D0F0F0F
0F0808001C3C3C3C3C3C3C000000000000000000000D [87]
100 DATA 0F0F0F0F1E00000000000000000000C0C0C0C0C0C000D0F0F0F0F1E000D0C0D0C0
E0C1E000D0D2D1C0E1E1E000D0D2D1C0E1E1E000D0D2D1C0E1E1 [D4]
E00141E2D1C0E2D2800040F0F3C0F0F2800001C0F0F0F3C000000003C3C3C [D4]
```

DISC MANAGER

BY M. WOOD

It's amazing just what can be done in only 10 lines. Here we present a disc manager program which enables files to be renamed, erased or un-erased and to boot a CP/M program. All clever stuff.

```
10 INPUT "What Drive A or B ",dev$:dev$=UPPER$(dev$): IF dev$<>"A" AND dev$<>"B"
 THEN 10 ELSE us=0:IF dev$="A" THEN ¦A ELSE ¦B [4A]
20 INK 0,0:BORDER 0:PAPER 0:INK 1,17:PEN 1:MODE 2:WINDOW #0,1,80,1,20:WINDOW #1,
1,40,21,25:WINDOW #2,42,80,21,25:PRINT#1,"R-Rename F [7F]
ile";SPC(9);"E-ERASE File":PRINT#1,"U-Unerase ASCII File  S-Change User":PRINT#1
,"D-Dir       C-CAT       P-Boot CPM":¦DIR [7F]
30 POKE &A701,us:PAPER #2,1:PEN #2,0:CLS#2:x$=INKEY$:IF x$="" THEN 30 [D4]
40 x$=UPPER$(x$):IF x$="R" THEN GOSUB 90:INPUT "NEW NAME ",nfil$:¦REN,nfil$,fil$
:CLS:¦DIR ELSE IF x$="E" THEN GOSUB 90:¦ERA,fil$:CLS [B2]
:¦DIR [B2]
50 IF x$="S" THEN CLS#2:INPUT #2,"USER 0-255 ",us:CLS#2:IF us<0 OR us>255 THEN G
OTO 50 ELSE POKE &A701,us:CLS:¦DIR  [20]
60 IF x$="D" THEN CLS:¦DIR ELSE IF x$="C" THEN CLS:CAT [6E]
70 IF x$="U" THEN POKE &A701,229:CLS:PRINT"Erased Files":CAT:INPUT #2,"ASCII FIL
E TO UNERASE ";ascii$:INPUT #2,"New User 0-15 ",nuse [EF]
$:IF VAL(nuse$)>15 OR VAL(nuse$)<0 THEN 70 ELSE GOTO 100 [EF]
80 CALL &BB03:IF x$="P" THEN ¦CPM ELSE 30 [B0]
90 CLS#2:INPUT#2,"INPUT FILENAME ",fil$:CLS#2:RETURN [F9]
100 ct$=nuse$+":"+ascii$:OPENIN (ascii$):OPENOUT (ct$):WHILE NOT EOF:INPUT #9,t$
:PRINT#9,t$:WEND:CLOSEIN:CLOSEOUT:CLS#2:GOTO 30 [DD]
```

MORSE CODE TELETYPE

BY C. WOOTTON

If you want to learn the coded communication method of Henry Morse, just type in these few lines and you will begin to see dots before your eyes. Pressing letters on the keyboard converts the characters into their morse equivalent.

```
1  'Morse Code Teletype [71]
2  'By Chris Wooton [72]
10 DIM mc(25):FOR a=0 TO 25:READ mc(a):NEXT:MODE 2 [8B]
20 i$=UPPER$(INKEY$):IF (i$<"A" OR i$>"Z") GOTO 20  [A3]
30 mc=mc(ASC(i$)-65):GOSUB 40:PRINT #0," ";:GOTO 20 [7C]
40 mc$=BIN$(mc):IF POS(#0)+LEN(mc$)>79 THEN PRINT #0:PRINT
   #0 [0C]
50 FOR b=2 TO LEN(mc$):x$=MID$(mc$,b,1) [12]
60 PRINT #0,CHR$(46+(x$="1"));:NEXT:RETURN [4B]
70 DATA 5,24,26,12,2,18,14,16,4,23,13,20,7 [7D]
80 DATA 6,15,22,29,10,8,3,9,17,11,25,27,28 [BA]
```

The BrunWord Package CPC6128 £30

BrunWord 6128 is a complete word processing system consisting of three programmes, a word processor, a spelling checker and a card filing programme. It is written to run on a standard unexpanded CPC6128 (or CPC464 + disc + 64K) and is optimised for use with a single disc drive. The latest version was released in October 1988 and out performs any other word processor for the CPC6128. The reason is quite simply that the latest versions of our competitors programmes have been designed for other larger computers whereas BrunWord has been perfected for the CPC6128.

The integrated spelling checker of BrunWord 6128 and its 30,000 word dictionary load at the same time as the main programme. We invented a special system to compact the dictionary so much that each word is represented by just one and a half characters. Each group of words had to be given the correct group ending and typed in by hand, taking one 'man' six months to complete. With such a compact dictionary, we are able to store this in the 64K of banked memory, making access very convenient and exceptionally fast.

Our closest rival claimed that their spelling checker achieves 'up to 2000 words per minute'. Our tests, published at the October 88 Amstrad show, revealed that its average speed for a file of 3366 words was only 526 words per minute and much more to our surprise, that it required eight changes of the disc to complete the spelling test. Our spelling checker, BrunSpell, achieved 3883 words per minute for exactly the same test and needed no disc in the drive. Remember that all other word processors need to load the dictionary from disc during the spelling test, even the so called ROM versions.

Scrolling the screen one line at a time, is also a vital performance test, as the CPC6128 tends to be naturally slow at this. Again, our closest rival is widely regarded as very fast, but BrunWord is 40% faster. . . . . .

BrunWord has a 40 page manual which has several detailed examples, starting with step by step instructions to produce and print a simple letter. But your very first step is to load the TUTOR file into BrunWord. This takes even the complete novice straight into word processing and demonstrates the powerful editing and formatting features of BrunWord. There are also examples of printer control, showing how to create headings, to underline or to emphasis, and five deliberate spelling errors for you to correct. The tutor takes about 20 minutes to run through and after that you will feel confident to type in your own text.

Our Booklet 'BrunWord & Printer' has 5 pages devoted to the BrunWord 6128 package.

BrunWord Features

*40, 80 or 128 column display *Touch typing speed over 200 words/min *True insert or overwrite *Justify or unjustify paragraph or whole text *Justified text has balanced appearance *Instant word wrap *Block save, move, copy, insert and delete *Local editing with word delete/undelete *Adjustable margins and TABs *Column/Line/Page display with file name *True word count *Find and replace *Help menus *Memory filing system *Single character embedded printer commands (18 with 3 printer codes and 21 with 10 printer codes) *Page throw markers *Multiple copies *Odd/even page headers/footers with page numbers *Multi file printing (new page or continuous) *Print specified pages *Works with any printer *True display superscript and subscript numbers *User defined print characters *Load ASCII files from other word processors *Save ASCII files for other word processors *Files can be encrypted *Maximum file size about 9 pages of text.

BrunSpell Features

*Memory resident with word processor *Checks 4,000 words/min *30,000 word dictionary *No American spellings *Add up to 5,000 of your own words *Instant lookup *Helps to find correct spelling *Automatic correction.

DataFile Features

*Alphabetical, numerical, date sorting on any field *User defined headings *Search routine *Data merging into BrunWord *Label printing.

Info-Script £50

Take the BrunWord package, expand the simple card filing programme into a comprehensive relational database and integrate this into BrunWord. The result is Info-Script. The database uses many of the internal routines of the word processor, making a very compact combination and allowing both programmes, 6 pages of text and 1000 names and addresses to be in the memory at the same time, using an unexpanded CPC6128. The great advantage of this is the speed and convenience of being able to access both programmes and their related data without any disc delays. Add to this the progressive search routines, the unique four marker system and the arithmetical functions and you will begin to understand the excitement of our customers.

BrunWord Upgrade

Send your BrunWord 6128 disc, BrunWord manual (not the packing) and a £22 cheque. We will record Info-Script, test, and return with a new manual.

Letters

I am extremely interested in the sound of your Info-Script. However, as the cost is £50 I am somewhat hesitant in purchasing and would therefore be grateful for any further literature. I am presently using Protext on ROM with Promerge and Pro-filer, but accessing Pro-filer is incredibly slow and long winded. Your advert would indicate that access time to stored data is much superior.
Mr G (Nottingham).

Thank you for my recent copy of Info-Script. My euphoria has nearly died down now - it is superb. It is a big improvement on my Protext and Pro-filer in that it combines the two with vastly superior speed and is exactly what I need.
Mr G (Nottingham).

May I take this opportunity to express my appreciation of BrunWord. My son has been the main user. After years of torture in school with pen in hand, the use of the word processor enabled him for the first time to concentrate upon the substance of what he wanted to write, and return later to correct and organise. The net result is that a young man who formally struggled at school and hated it, now accomplishes the written components of his course with ease and satisfaction.
Mr G (Sutton Coldfield).

I have found it (BrunWord) a very easy word processor to use, and the more I use it the more I like it. The same goes for Info-Script, the more I use it the easier and more flexible it becomes.
Mr L (Australia).

BrunWord Elite £90

Our original aim in designing this programme was to produce a fast desk top publisher with very good quality printing and a memory resident spelling checker. A few jottings on a scrap of paper revealed that two 256K memory expansions would be needed and that even then it would be far too slow. BrunWord Elite is our solution to this dilemma and runs on an unexpanded CPC6128 (or CPC464 + disc + 64K). It starts by assuming that the printer knows best how to print and provides only a controlling hand, to help choose the best compromise. It follows that the best results are achieved with the best printers.

The text is typed (or loaded) into the editor with no regard for the final layout. It is edited and spell checked using all the normal features and speed of BrunWord 6128. When this is done, a set of layout commands are placed at the start of the text. With these commands the text can be printed anywhere and everywhere on a sheet, just so long as the facilities used are available with your printer. Boxes and lines can be drawn and different fonts can be downloaded to print in different type faces.

The idea is that the user will create several page layout patterns (or use the ones supplied) and then only need to worry about typing and editing the text. The screen will not show the actual layout, if it did it would be painfully slow and would not achieve the ultimate quality.

BrunWord Elite has all the features of BrunWord 6128, all the features of Info-Script and seven 24 pin fonts (four fonts in different sizes). It is supplied with a printer lead and an 8 bit printer status port which allows the programme to interrogate the printer. Printer OFF, No Paper, OFF Line, ON Line are the status messages that keep you informed dynamically of the current printer condition.

BrunWord Elite works with any Epson compatible printer, which means ALL modern dot matrix printers. At the bottom end, even the simplest 9 pin printer will be able to print in up to six columns. If the printer has IBM codes (as well) then simple lines and boxes can be drawn, and if the printer has reverse line feed, then text can be printed anywhere and everywhere on a page.

At the top end a 24 pin printer will be able to use the fonts supplied with the programme, print boxes and lines by specifying size and line thickness, and use micro justification with proportional text.

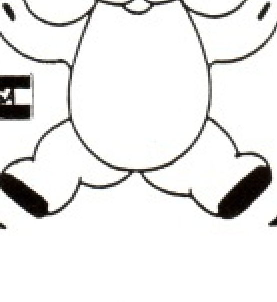
BrunWord Elite printed this advertisement, except for the layout around the teddy. The text, lines and price list were printed on an A3 sheet, then the teddy and address layout were pasted on and the sheet was photographically reduced to A4. Compare this to our previous advertisement to see all the changes. Section have been re-written, moved and then tailored to fit the columns by changing the font size and fine tuning the line spacing.

BrunWord and Printer

We have written a sixteen page booklet which explains all about our programmes, starting with BrunWord 6128 and going on to Info-Script and BrunWord Elite. The booklet is an example of the power of BrunWord Elite, being printed in A4 size directly from masters created using BrunWord Elite. Four different 24 pin printers have been used to print the booklet so that a direct comparison can be made in the quality and technical excellence of the printing. The last page includes our own assessment of seven different 24 pin printers and a summary of four 9 pin printers. The booklet is free to all CPC owners. Simply write your name and address in block capitals on a sheet of paper and send in a envelope to 'BrunWord & Printer', Brunning Software, at the address below.

Send cheque/PO/Access number/Visa number to:

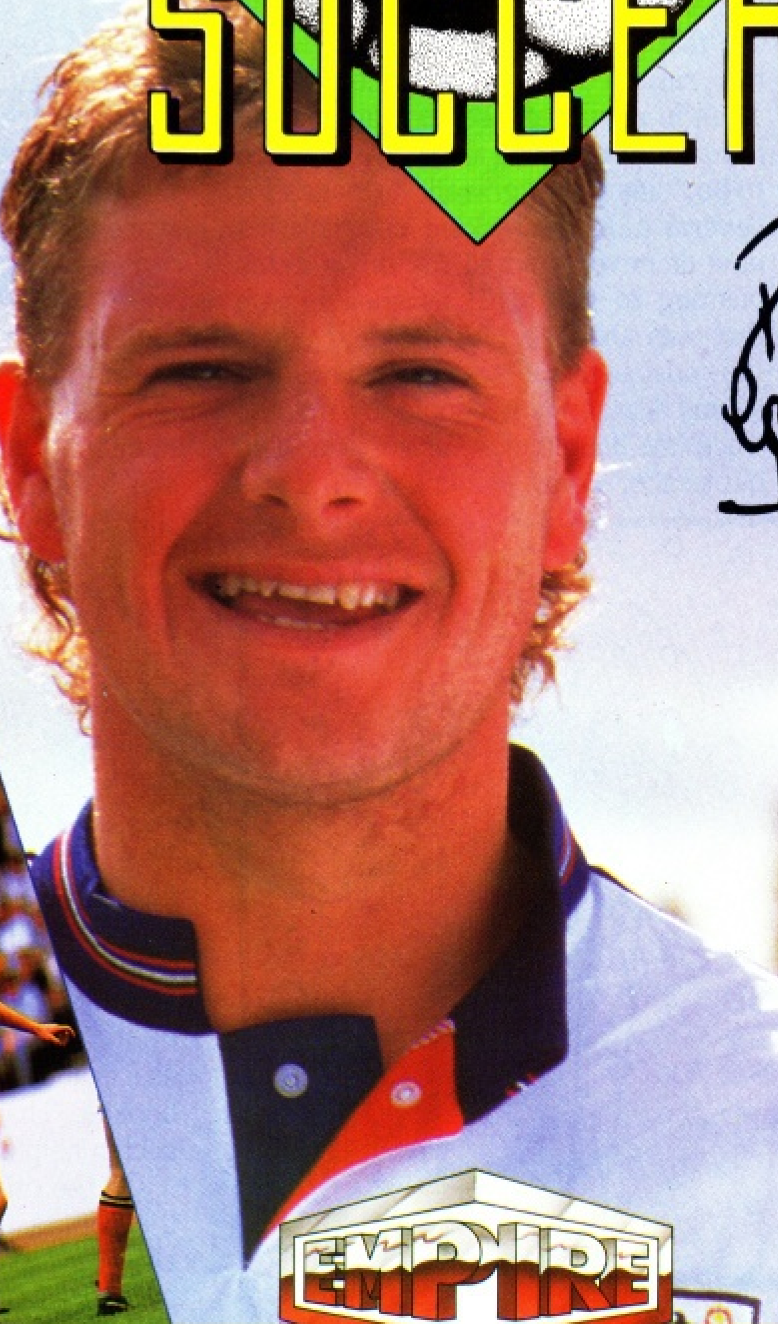
Brunning Software
34 Helston Road,
Chelmsford, Essex, CM1 5JF
Telephone (0245) 252854 (24 Hours)

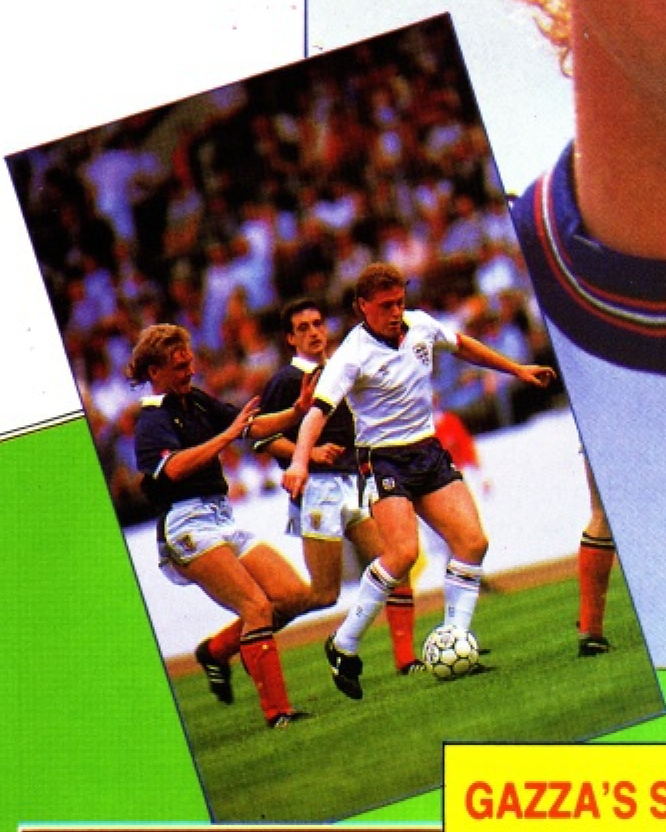


BrunWord 6128 with BrunSpell & DataFile. . . £30.00
BrunWord 464 with BrunSpell & DataFile. . . £25.00
BrunWord Junior 6128 with BrunSpell. £18.00
BrunWord Elite 6128, Info-Script & BrunSpell. . £90.00
Info-Script 6128 with BrunWord & BrunSpell. . £50.00
100 Letters (needs Info-Script). £15.00
BrunWord Elite and Info-Script include backup disc.
(All supplied on 3in Disc - state which computer)

All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

Gazza's SUPER SOCCER

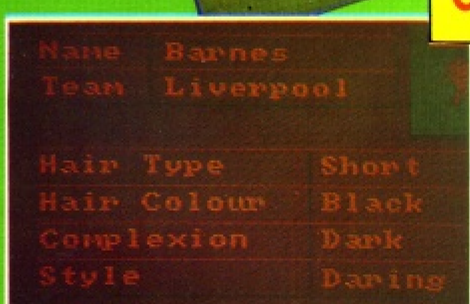


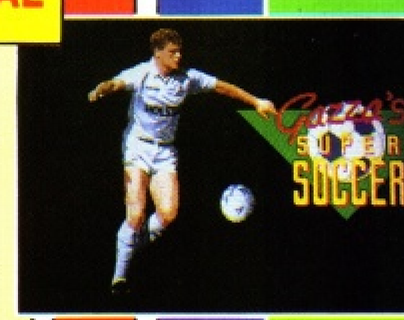




EMPIRE

GAZZA'S SUPER SOCCER – SIMPLY SENSATIONAL





Superb fast action gameplay featuring real teams from the Football Leagues.

- Each team defined with the correct strips.
  Create your own superleagues, cup competitions and build your strongest squad.
- Each player in the team has his own characteristics- skill level, speed and style of play. The skill level of your team can be improved through playing well.
- Realistic ball control allowing you to chip over, curl round or dribble through the opposition. The unique "Boot-O-Meter" enables you to vary the strength, height and spin of any kick.
- Full control of corners, free kicks and goal kicks.
- Heading, tackling and fouling.
- Full, realistic control of goalkeepers.
- Superb one or two player action.
- Play in a whole range of league, cup and practice matches or just practice penalties, free kicks and corners.

The Country's most exciting computer game, endorsed by the country's most exciting player!

"Don't forget, buy Gazza's Super Soccer. It's the No 1 Computer Game."





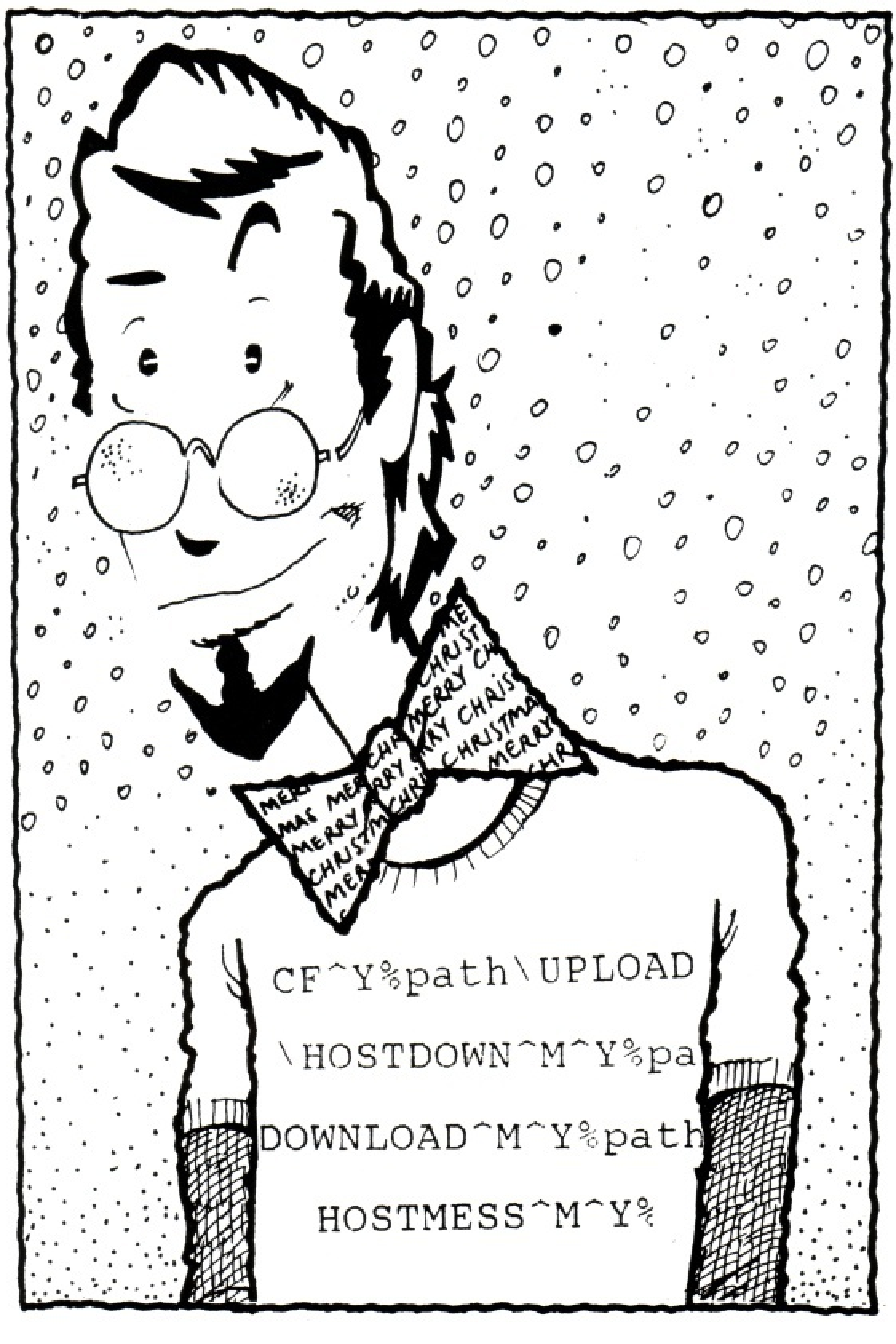
Available for Amiga, Atari ST, Spectrum, Amstrad and C64

4 THE STANNETTS, LAINDON, NORTH TRADE CENTRE, BASILDON,
ESSEX SS15 6DJ TEL No. (0268) 541126 FAX No. (0268) 541125

A better image

Trevor Cummings flexes the grey matter and discusses the production of external graphics via the CPC, among other things.

Now that the flurry over the new copyright laws has died down somewhat it is interesting to see that Romantic Robot's *Multiface II* has returned to the market place, albeit in a quieter fashion than when it left. You remember all the 'last chance to buy' ads which graced our pages for several months, making us think it's now or never, and all the news items pointing to the MFII as the big gun that was about to bite the dust under the onslaught of the new laws? It seems like only a couple of months since we bought now or forever held our peace. Come to think of it, it was only a couple of months ago. Were we all conned then? No, not really. Romatic Robot did the right thing in withdrawing the MFII from sale at the time. The risk of prosecution was too great. They have now taken legal advice and are assured that their product is completely safe from the law and consequently have begun to sell it again. I hope they're right as a legal defence could costs tens of thousands of pounds. Welcome back Multiface II. We missed you. Well, for a little while anyway.



Peter Brunning of Brunning Software is feeling particularly pleased with himself just now. Not just because their innovative word processing system, Brunword Elite, is set for imminent release as I write this, and will be on sale as you read it (watch this space for a full review) but because their booklet *Brunword & Printer*, which was advertised previously but seemed to fade away, is now at the printers and will be available free to all who send their name and address to Brunword & Printer, Brunning Software, 34 Helston Road, Chelmsford, Essex CM1 5JF. Its 16, A4 size pages take the reader right through all Brunning's software from Brunword 6128 to Info-Script to Elite and is printed by Brunword using four different 24 pin printers. Summaries of 9 and 24 pin printers used together with Brunword are included in this nice little freebie booklet. Thanks Peter. It's good to see such a helpful service.

On the other hand I am sorry to see the demise of MicroStyle's unique 3rd Drive Switching Cable. It was the only product available which allowed the use of three disc drives on the CPC. I understand that technical difficulties are the reason for ending the line.

And now . . .

The main subject I want to cover this month is the means of reproducing external graphics or pictures on a printer, via the CPC. I'm not going to do a full review but simply discuss the choices available to us as CPC users. I know of just two methods. One is Rombo's video digitiser and the other is Dart's scanner. You may wonder about the mouse, light pen and grafpad methods, but these don't reproduce pictures. They are means of creating them. Both products are quite different and don't really compete with each other. Video digitisers are naturally limited to video pictures

such as TV programmes, video tapes and video cameras. Unless you have a good video camera, your favourite photographs cannot be digitised and printed out. The scanner though is different. Whilst it cannot accept TV type pictures, it can and does scan photographs, artwork, etc. and stores the image in the computer for later printing.

Video digitiser

The *Vidi*, produced by Rombo Productions, is, I believe, the only video digitiser we have for the CPC. Its software is normally supplied on disc but is also available on rom. In a nutshell it will capture into memory a picture from any standard video source. It can be fed from the normal TV signal, a video recorder or, better still, a video camera. It contains its own CRT (cathode ray tube) controller and 16k of video ram enabling it to capture frames at the rate of more than six a second which makes watching a jerkily moving TV program most interesting. At any time the current frame can be grabbed or frozen into one of its two screen memories and it can be done in any one of three different modes. When grabbed the digitised picture may be saved on disc for future use, printed out or even manipulated in various ways.

Sounds good, doesn't it? And it is good! The highest resolution achieved is in mode 2 which has just two shades. Mode one, medium resolution has four shades and mode 0, the lowest, has 16 shades and is best used for effects rather than good clean pictures. The types of image manipulation made possible by the Vidi is varied. As we would expect, the colours can be changed to suit personal tastes. Obviously colours cannot be printed out to a standard printer so care should be taken with this as a beautiful colour picture on the screen can turn out to be horrible shades of grey when printed on paper.

Two images can be grabbed into two screens. Once there it can be saved to disc of course and printed out, but it can also be modified in various ways. Colours have already been mentioned. Areas of the picture can be cleared, moved and the whole thing can even be reduced to one quarter of its original size. By using the various facilities very interesting pictures can be produced.

One more thing. The vidi program sets all its options up as RSXs which means that the whole thing can be run from your own basic program and therefore vidi produced screens are easily incorporated into your own games software. A quick bit of thinking will also realise that, if pictures can be manipulated from basic, then ac-



tive pictures can also be produced from basic to accompany, and be incorporated into, your own programs. This can be achieved by the modifying RSXs. Nifty? I think so.

Scanner

Just got space for a quick discussion of the Dart Scanner. Like the Vidi, it is the only device offered for the CPC that does quite the job it does which is to scan images, line by line, and reproduce them in the computer memory. From there they can be manipulated to some extent, saved to disc and printed out on paper. The main unit plugs onto the computer's expansion port and incorporates an essential brightness control. Its scanning device fits the print head of the Amstrad flat bed printers; DMP2000, 2160, 3000 and 3160. The image to be scanned is fed through the printer, the print head is moved across each line and in this way the whole image is scanned and built up on the screen. It takes a few minutes to scan a screenful, but the results are tremendous. Black and white subject matter is usually better than colour of course due to improved contrast but with careful adjustment of the brightness control colour images can be captured. Choices can be made as to the size and magnification of the image to be scanned. Some choices produce higher resolution end results than others and all choices have their own merit in aesthetic terms.

Once the image is in the computer and on screen it can be manipulated in several basic ways. A complete reversal (mirror image) is the most obvious and can be used together with other options to produce very satisfying results. It is possible to define an area to be copied to another area, an area can be deleted, an area can be scrolled from side to side or up and down, an area can be defined and all around it cleared, a zoom in and edit function is included to tidy up or modify the image, screens can be merged together and, perhaps one of the best functions, text can be added to the picture.

With these versatile functions original pictures can be manipulated to become very attractive designs. When all is done and saved to disc a printout is of course required. Even here a choice is offered between a large picture and a small one, the small choice giving the better definition. Costing £79.95 the scanner is well worth the money and compares very favourably with similar products for other computers.

Both the Vidi and the Scanner are unique. They produce similar end results but their image sources are totally different. The Vidi needs a video input which limits most of us to other people's original artwork. The Scanner inputs our own artwork, whether photographs or drawings. So it isn't really a case of choosing between two competitors. It's more a case of which suits what I want to do the best. ●



SAVE UP TO
The Game Creator

A box of delights

Fancy generating your own sprites without messing around with machine code? We review a package that could let your imagination run wild.

Having looked through the various demonstrations and glanced through the manual, I must say that I am impressed. *Sprites Alive* allows 64 on-screen sprites, animation and sequencing from stored images, pixel smooth motion, collision detection. It also adds 70 RSX commands to Basic, a sprite designer program and a comprehensive manual. All of this for just £19.95 – it has to be a bargain.

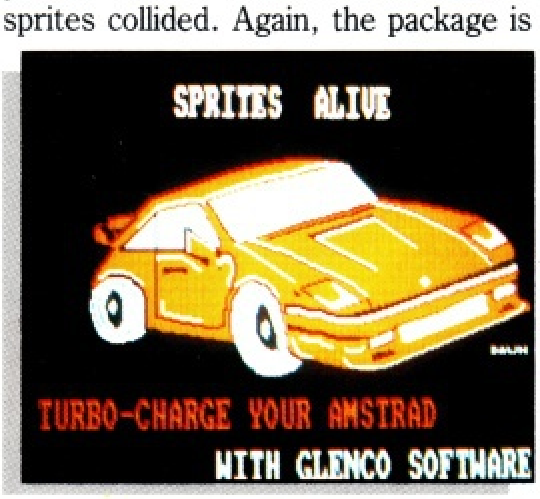
The system is based around a set of RSX commands which, when loaded into memory, provide control over sprites, sounds, graphics and keyboard/joystick access. The package provides very sophisticated control over the sprites and quite complex programs can be created in a relatively small number of program statements. The biggest problem with the package lies in its sophistication as it is quite hard to figure out how to get started before reading the manual – I know that I should have done this first but I prefer to play around a little to begin with, just to see how easy the package is to use. Fortunately there are six demonstration programs supplied on the disc providing pre-written routines and pre-drawn sprites that can be messed about with to get used to the large number of commands.

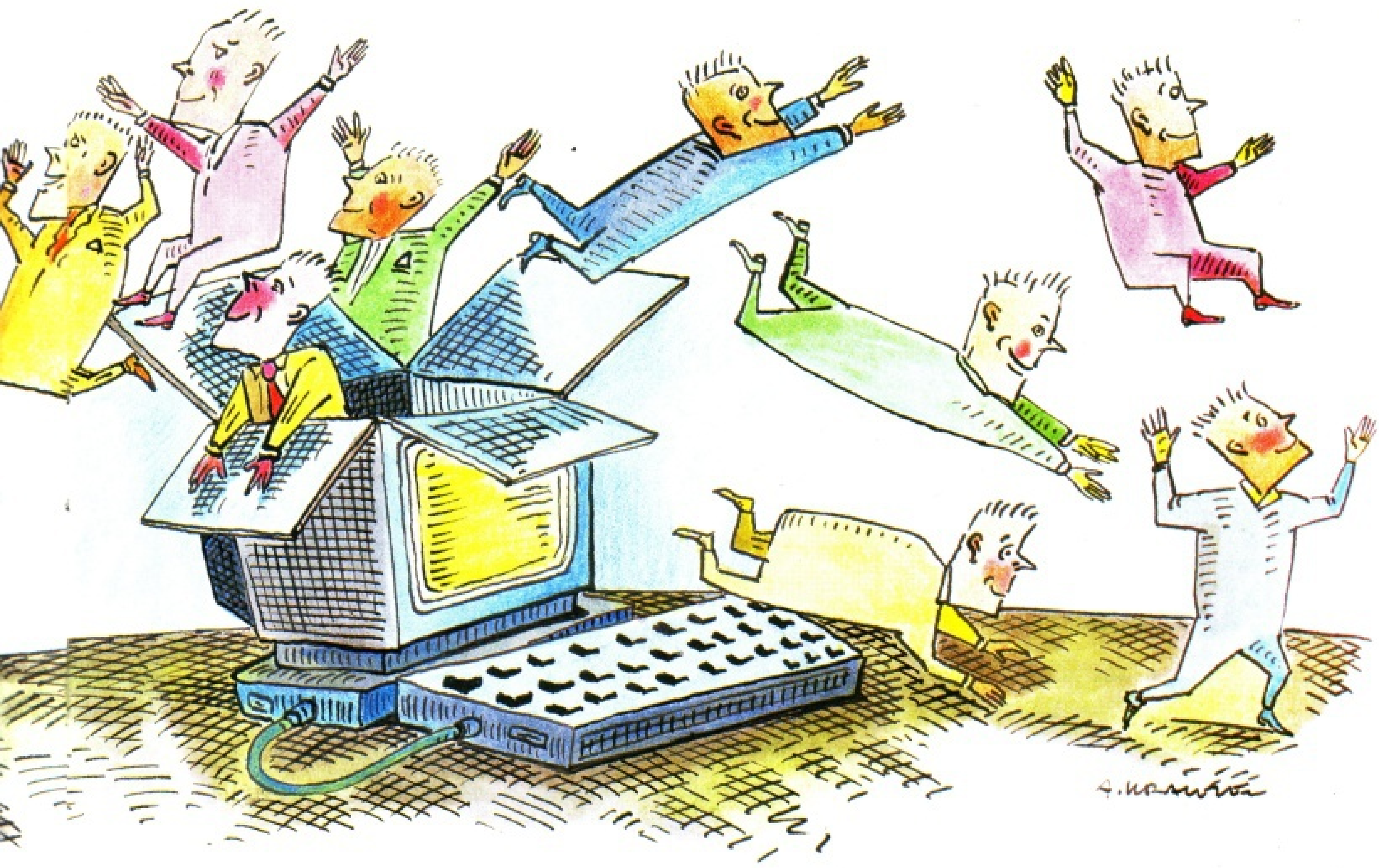
The basic operation of the system uses up to sixty-four drawings, any or each of which can be assigned to a sprite. This means that a number of sprites can use the same definition or drawing, giving a great saving in memory. The drawings themselves can be created on screen (modes 0 and 1 only) and then copied into memory as a sprite definition, or drawn with the supplied sprite designer and loaded from disc. There is an oddity here in that although there is a command to load the sprite designer drawings automatically into memory there is none to save them to disc. Attaching the sprites to drawings is quite simple, as is assigning direction and speed. Once these basic parameters have been set up, all the sprites can be set in motion either individually or with the overall command |MOVEALL. This means that a Basic loop with a |MOVEALL command in it is all that is needed to get everything moving.

There can be up to sixty-four sprites on the screen at any one time – though things get a little slow with this many – and of these there are two main types: joystick or keyboard-controlled and standard sprites. The first are controlled directly by the movement of the joystick or by keypresses on the keyboard. You can select which directions and which keys to use, and also the speed at which the sprite moves. Thus, there is an easy way of providing the user with a playing sprite (e.g. a bat or a spaceship) without any special routines for reading the joystick or keyboard. This is a theme that runs through the whole package; commands are designed to take the work out of programming.



Collisions are automatic and of three types: stop, disappear and bounce. Depending on how it was set up, the sprite stops, disappears, or bounces when it hits another sprite. No program intervention is required, though more basic functions are supplied to let the user know which sprites collided. Again, the package is



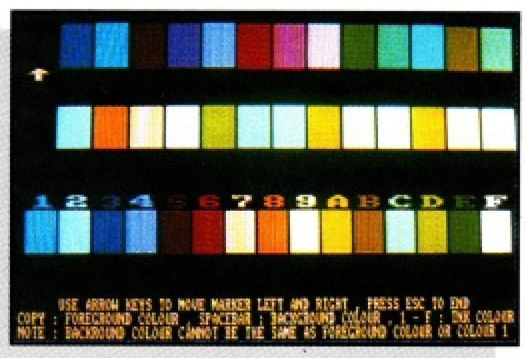


comprehensive in that although there are many complex commands, the basics are still available: the joystick and keyboard can be read, for example, as well as being used for auto-control of sprites.

There are sixty-two standard sprites, each of which measures up to 32x32 pixels. Each can be given a direction and speed, a collision attribute, a box to limit its movement, and an attribute defining what it does when it hits the edge of the screen. There are also a number of 'feedback' commands that allow information about the sprites to be fed back to the user program. The position, direction and collision status can be read for each sprite as well as miscellaneous system attributes such as the amount of free memory.

As well as simple moving sprites, there are a set of commands that allow animation sequences to be created. The drawings to be used in the definition are linked to the sprite and then cycled through when the sprite is moved. In addition, the sequence of drawings used is dependent on the direction of the sprite. This makes animating objects such as walking people, flying dragons and spinning spaceships, very easy.

Yet another built-in facility is a set of commands to automate the firing of missiles. Once the various parameters have been defined, a missile can be fired simply by issuing a | SHOOT command for the sprite wishing to fire. Missiles automatically disappear when they reach the side of the screen and stop, giving a collision report, when they hit another sprite. The provision of specialised commands for missiles takes yet another chore away from game writing; this seems to be the main aim of the package.



Not satisfied with providing a comprehensive sprite management system, the author has also included a useful set of commands for other functions. Drawings can be placed on the screen in non-sprite form to provide scenery; sprites can be exploded; there is a frame synchronisation command; checks can be made to see whether sprites are stuck together; and screen pixels can be tested and set. Sound effects can be set up and attached to sprites so that when missiles are fired, sprites exploded, or bounces occur, the sound will be initiated.

The provision of nodes is a rather unusual facility. These allow mazes to be created that constrain the sprite positions within them. A sprite can be moving in a certain direction and hit upon a node. The definition of the node will then tell the sprite supervisor what direction the sprite can take. The example given is a Pacman-type game where the nodes are the junctions: the ghosts wander around the maze changing direction when they hit a junction – defined as nodes. As nodes are fairly difficult to set up, there is a node designer program supplied on disc that helps out. Once defined, the node set can be loaded into the game. Sprites moving around the maze can be set to pursue the joystick or keyboard sprite or flee from it; it seems to be tailor-made for creating a Pacman-type game.

Sprites Alive is aimed at the user who can program in Basic but who does not want to get dirty hands messing about with all that horrible machine code. It removes all the hard work and makes using sprites very, very easy.

Product: Sprites Alive

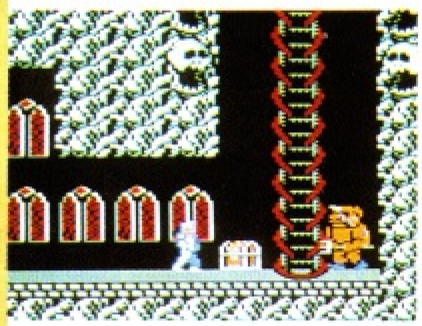
Machine: Amstrad CPC

Supplier: Glenco Software,
15 Alford Lane,
Stockton on Tees,
Cleveland TS19 0QP

Price: £19.95

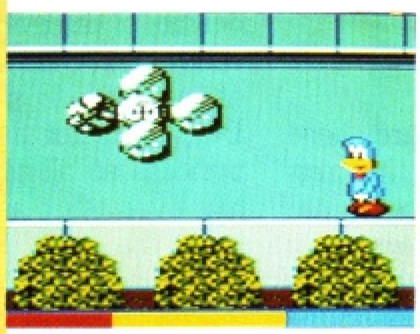
The ghouls don't stand a ghost of a chance with this month's main mega questing, monster blasting game *Ghouls 'n' Ghosts.* This month's Gameplan continues the dead theme as a deceased detective tries to clear his name in *Scapeghost.*

GAMEPLAN



GHOULS 'N' GHOSTS

The brave knight Arthur tackles the forces of darkness as he tangles with Lucifer in a quest for a missing princess.



DYNAMITE DUX

A killer psycho duck goes on the rampage with some very heavy artillery.



AFTER THE WAR

One mean and muscular hero returns to a warn torn Earth to beat up the bad guys and set the world to rights.

PLUS

Sporting Triangles, Star Wars Trilogy, Mutant Fortress and Scapeghost.

TOP 20

1	(1)	Crazy Cars	Hit Squad
2	(4)	Robocop	Ocean
3	(NE)	Batman 3D	Hit Squad
4	(2)	Mig 29	Code Masters
5	(NE)	Top Gun	US Gold
6	(3)	Twin Turbo V8	Code Masters
7	(5)	Indiana Jones Last Crusade	Hit Squad
8	(16)	Batman – '88	Ocean
9	(6)	Green Beret	Hit Squad
10	(NE)	Strike Force Harrier	Alternative
11	(9)	Crazy Cars 2	Titus
12	(13)	Dragon Ninja	Ocean
13	(11)	Enduro Racer	Hit Squad
14	(NE)	Vigilante	US Gold
15	(17)	Spitfire 40	Alternative
16	(NE)	Crossfire	Atlantis
17	(19)	Emlyn Hughes Int. Soccer	Audiogenic
18	(NE)	Moving Target	Players
19	(12	Yie Ar Kung Fu	Hit Squad
20	(NE)	Rick Dangerous	Rainbird

Last month's position in brackets



Ghouls 'n' Ghosts

Battle it out with the undead and recover kidnapped Princess Prin Prin in this spooky romp through the underworld.

Once more the fair princess Prin Prin finds herself in evil clutches and none but the brave knight Arthur can save her. Donning his armour he sets forth, lance in hand, to show Lucifer the error of his ways.

The undead can be a little funny about property rights and it is only to be expected when they get a little upset about our hero tramping over their graves. Being polite, they creep up behind Arthur and try to attract his attention by tapping him on the neck with their scythes. Quite unreasonably, Arthur takes offence and sticks them with his lance. This brings an end to what could have been a pleasant stroll to Hell as the local inhabitants arise to kick up a stink.



The quest starts upon desolate ground where the dead challenge the armour plated hero. These trendy ghouls with their over-the-shoulder shrouds and designer scythes make the perfect fashion accessory for any questing hero. The occasional ghoul carries a golden pot which, upon its demise, releases an enchanted object. These objects can be anything from the latest in high-tech axes to those all-alluring bonus points. The second method of gaining bonus points and additional weaponry is to tempt the wrath of the sorcerers by whacking their chests with your weapon. If favourable to your quest they will grant you a mighty weapon or some magical armour but if not, you could find yourself on the end of some heavy duty sorcery and spend a short time as a duck.

There are five weapon types for Arthur to wield, each varying in speed, power and trajectory. The lance and sword follow a straight path to their target but at different speeds. The axe, however, takes an upward angle, which is great for shooting flying monsters but lousy when running downhill as all you can do is shoot over the heads of monsters. The discus avoids most of these problems by flying straight until it hits the landscape which it then hugs until striking its victim or leaving the screen. The final weapon is the flaming flask which has a limited range but a long-lasting effect as it sets fire to the ground. If power armour is obtained, the magical side of these weapons can be utilised. The lance calls down the lightning with devastating effect; the sword creates a double to aid you and the final three release glowing balls which spiral into the heavens destroying all they encounter.

Each of the five levels is split into two sections; losing a life takes you back to the start of the current section. Once past the rising dead, guillotines and vultures, the rain begins and you battle your way past whirling dervishes to meet head on the end-level guardian. This giant seems to have a severe case of dandruff but instead of the odd flake his entire head floats free. Avoid the missiles issuing from its mouth, land a few good blows and a key is liberated, taking you to further adventures on the next deathdefying level.

From the rain soaked hills the knight moves to another extreme, the life-sucking heat of the desert. The rundown windmills look a little out of place in this scenery but the cultural clash is minimal compared to the leaping turtles. This level boasts one of the hardest parts to the game and a monster of which bad dreams are made. Halfway through the level you find yourself sliding down a pit in the sand, what awaits at the bottom appears indestructible and is little more than a jaw with legs. Later you struggle with bottomless pits and then a final encounter with a leaping end-level guardian.

The first two levels are pretty tough but things deteriorite rapidly as you storm a monster-filled castle before pressing on to find yourself once again in the land of the dead. Sloping ice pathways add a new angle but the end-level guardian is really odd, it's a dead whale. This gigantic carcass has a few infestations which until removed bar your exit to the next and final level.

After battling your way past some pretty heavy minions you reach the heights of the evil fortress to confront Lucifer in the guise of a winged monstrosity. Defeat Lucifer and free the princess so all can live happily ever after and you can hear the nice Elizabethan victory tune.

This game is very playable. The graphics and sound effects are not outstanding but the joy of playing this game outweighs all such minor considerations.

Adrian Pumphrey

ROUND-UP			
NAME	Ghouls 'n' Ghosts		
SUPPLIER	U.S. Gold	PRICE	£9.99
74%	76%	92%	87%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Mutant Fortress

You are a trucker trying to survive in a post apocalyptic world and recover your stolen rig.

If you think it's bad enough that atomic war has done away with the earth as we know it, along with most of your trucking chums, and filled it with such socially acceptable guys as lizard men and 'muties' instead (not to mention a fair smattering of pretty malicious looking seagulls), think again.

Imagine the scenario: there you are, minding your own business over a burger at Greasy Tex's post-apocalyptic truckers' paradise, when these nasty chappies have the gall to hijack your most treasured possession – your beloved armour plated eighteen wheeler.



Now, you ask any 'king of the road' how he would feel in a situation like this, even without the added inclemencies of a recent nuclear war, and I think you will be able to understand all round hard guy Brad being a little hacked off by it all.

So, high in expectation, with a Yorkie in my pocket and a pistol on my hip, I gulped down my burger and prepared to battle my way through this latest budget epic from Players in a desperate bid to rescue my chrome damsel from the mutant fortress.

Unfortunately, I have to admit that after spending some time despatching with pan-faced zombies, catching my leg in man-traps and wading waist deep in quagmires my expectations had sunk somewhat, leaving me with indigestion and a profound feeling that I shouldn't have hurried that burger.

My overall impression of the release is: great idea, shame about the game. Those well-worn combat tactics 'dodge, weave, shoot . . . jump, weave, shoot' will see you nicely through the earlier stages but before long forward progress becomes painfully slow.

Picking up extra ammunition and strength where and when you can will eventually lead you to an end-of-level guardian who is slightly meaner than his cronies and well worth saving a few bullets for.

Having plodded through the forest and wasteland stages to level three, you get the added attraction of being fired at yourself before finally meeting the infamous head mutie, Quinton Smythe.

The information display at the bottom of the screen keeps you well up to date with your weaponry and physical status, which is depleted on contact with the muties, but it is also one of the most colourful bits.

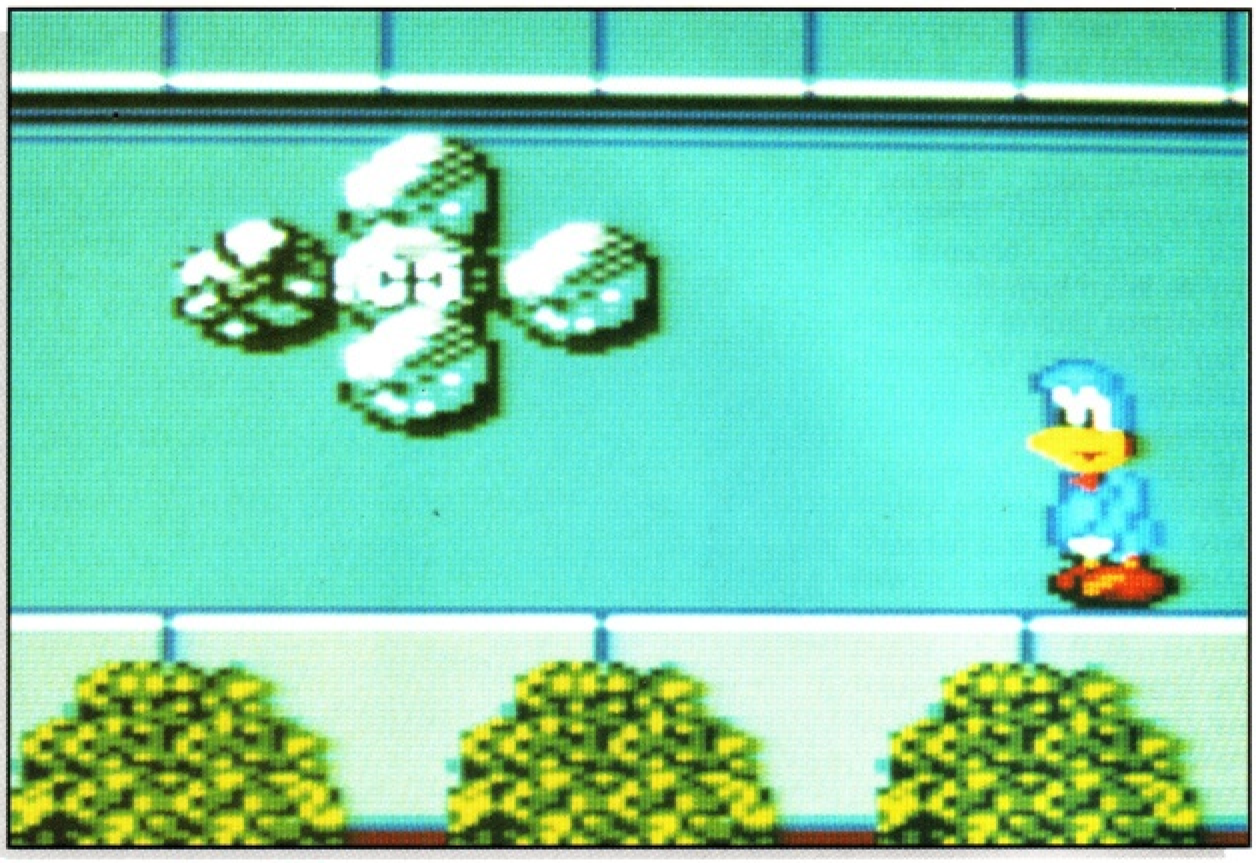
Although the graphics in the play arena are clear and well-defined, the monotone shades of yellow and green at the earlier stages are not particularly impressive.

All in all, rather than shooting a path through to the mutant fortress, hard guy trucker Brad's time would probably have been better spent putting a call through to his post-apocalyptic insurance brokers and leafing through Auto Mart for a new rig.

Chris Knight



ROUND-UP			
NAME	Mutant Fortress		
SUPPLIER	Players Premier	PRICE	£2.99
47%	43%	52%	48%
GRAFFIX	SONIX	PLAYABILITY	OVERALL



Dynamite Dux

You are a loveable duck armed with a portable rocket launcher, out to rescue your girlfriend. Watch out for the bouncing dog heads.

You may be one of those people who perceive ducks as harmless feathered fowl that go well with oranges, but this game could drastically change your point of view. A mad duck is a mean dude and this duck is exceptionally disgruntled.

When the delectable Lucy fell foul of the fiend Achacha, Bin and Pin set forth to wreak retribution. Unfortuntely Pin had to cancel his appearance due to the shortcomings of 8-bit technology. Despite having to face the bad guys alone, Bin puts up a brave fight (probably due to the portable rocket launcher he totes) but he soon finds the need for a hard bitten joystick jockey to guide his actions; enter you. This mission is not without its hazards and anyone delving into this world cannot do so without having a few mental boundaries stretched as the characters encountered are nothing short of bizarre. The bouncing dog and deer heads I could handle but the rats with spring midriffs and large booted mice took a little bit of swallowing, but very tasty they were.



For once, the CPC pulls out all the stops and brings on the multi-colour sprites. In fact the graphics are great and the combination of quality and variety make this a game a visual treat. Unfortunately to achieve this memory guzzling feat the size of the playing area has been reduced. This means that it is all too easy to wander past the weapon of your dreams because it is just off screen when you pass. Despite its size the scrolling play area conveys the impression of a large play area as it twists and turns through urban streets and jungle tracks.

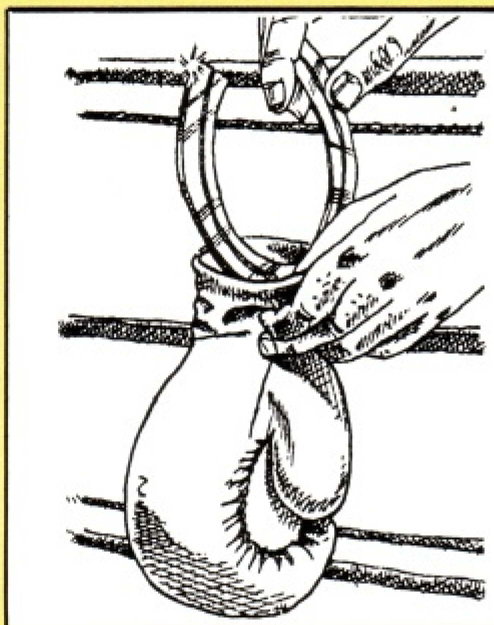
To combat the myriad menagerie of monsters the hero has at his disposal an arsenal that would make Rambo envious. Each weapon has a limited number of uses but as they are plentiful this is no problem. You start with rocks and bombs but progress to the deadlier homing missiles and rocket launched boxing gloves. If your duck finds himself without the benefits of hardware he can always employ the secret weapon, a right hook that would put Tyson to shame. The longer you hold down the fire button the larger his fist becomes, releasing the button lets the punch fly.

The animal adversaries which our duck must battle come in many forms, the deadliest being the mid and end level guardians. Most monsters encountered are easily killed and doing so occasionally liberates food in the form of cake which can be used to replenish depleted energy levels. The guardians depart from the animal theme as they are made from the elements. Fire, electricity and stone being the common ones. Combating the fire elementals is far from easy as you try to douse their spirits with a water cannon.

The action is constant and the cartoonish characters make this game ideal for the younger psychopath.

Adrian Pumphrey

ROUND-UP			
NAME	Dynamite Dux		
SUPPLIER	Activision	PRICE	£9.99/14.99
89%	72%	80%	83%
GRAFFIX	SONIX	PLAYABILITY	OVERALL



HINTS TIPS MAPS N' POKES

We kick off the festive season with a bonanza of game cheats and helps. Be the best on the block with ACU.

Licence to Kill – Playing Tips

Level 1 In this level, the opening scene from the film, the drug baron Sanchez is in a jeep trying to escape from Bond who is in a US Coastguard helicopter. The jeep swerves from side to side as it tries to evade you, and will fire at you if you get too close. You can only shoot the jeep when the helicopter's nose is tilted forward as you accelerate, otherwise your shots will go over it.

The best tactic to get the jeep is to attack it as soon as the level begins and get as many hits on it as possible. With any luck you will have destroyed it before you reach the huts and emplacements where Sanchez's henchmen are positioned. After playing this level a few times you will learn where the henchmen are, and you can line up your helicopter before they come onto the screen and shoot them first.

Now you are controlling Bond himself and you must tackle Sanchez's men on foot. To aim your gun, hold the fire button down and an aiming reticle will appear in front of Bond. With the button still pressed, move left and right to point Bond's gun in the right direction. Releasing the button and subsequently pressing it quickly will fire a bullet. It is best to hide behind objects whilst aiming, and then running out from cover to shoot the enemy. Some henchmen will drop extra magazines for your gun when they are shot, but be careful not to shoot the magazines. If anybody shoots an oildrum too many times it will explode, killing anyone in its vicinity. This can be very useful for killing henchmen hiding round corners. By running up to the enemy, you can rout them from their hiding places, and they will run up the screen looking for new cover. This is good for clearing the area of the enemy, but don't forget they are only going to be waiting for you further ahead. Eventually you will reach your helicopter again, and you must take off in hot pursuit of Sanchez, who has now boarded a light aircraft and is heading for Cuba.

You are now back controlling the helicopter as Bond dangles below on a winch cable. Sanchez will dodge out of you way whenever you get close, but your must try to position Bond over the tail of the aircraft and press the fire button when he is within reach. Bond won't be able to grab on to the tail when he is beneath clouds, so you must find a clear section of sky. If you are successful, Bond will tie the cable round the tail of the aircraft and this will cause it to stall. Then Bond will parachute from the helicopter.

Level 2 In this level Bond is making his getaway from the Wavekrest, pursued by frogmen and boats. By pushing forward on the joystick Bond will swim underwater, and cannot be seen by the snipers on the boat, but he can be seen by other divers, who will try to harpoon him. However, Bond can only stay underwater for a limited amount of time, as he hasn't got an unlimited air supply. Bond will also be able to destroy bags of drugs which float on the water by pressing the fire button to use his knife and cut the bags open for extra points. To kill a diver, Bond must move in very close and stab them by pressing the fire button. Bond will then have the diver's harpoon gun, which will be shown on the status panel.

After dodging harpoons and boats for a while a seaplane will drift onto view at the top of the screen. Bond must now use his newly acquired harpoon gun to shoot one of the pontoons of the seaplane. If his shot is successful, he will be dragged behind the seaplane, and must waterski barefoot to get to the cockpit. He can gradually work his way up the rope by pushing the joystick forward, but be careful to avoid rocks and buoys in the water, as well as the boats who are still firing at you.

Level 3 This is the final level and portrays the thrilling truck chase at the end of the film. The other obstacle is the other tankers. You must drive up beside them and ram them off the road, without being pushed off yourself. After a certain amount of damage, the other truck's cab will detach from its trailer and come after you. This must be destroyed as well for you to progress. Once all the tankers and jeeps are destroyed, you have finished this level.

APB – playing tips

In APB you play the part of Officer Bob, whose job it is to clear the streets of criminals and hoodlums. It's a tough job, and all you've got to start off with is your trusty police car. The action takes place over a number of days, and you can start off on any day up to Day 8. If you are a novice cop you'd be better off starting on Day 1, where you have to drive around a designated course 'arresting' traffic cones. To arrest a cone, position the steering wheel over the cone and press the fire button. The steering wheel will turn into a 'Pull Over' sign and the cone will be 'arrested'. This is a good day for earning lots of money, because after you have picked up the quota of cones, you still have plenty of time to pick up all the others plus a couple of bonuses and get back to the station for double points.

From now on you have to face real criminals, and as each new type of offender appears when you start a day, you are shown what it looks like and how to arrest it. The most important thing to do when you first start playing the real game is to make a map. The game play area is huge, and some offenders are found only in certain places, so it is imperative that you find them quickly. You also need to know where Donut Huts, Speed Shops and Gas Stations are, so that you can plan your route to include getting extra time, extra capabi-

lities and extra fuel respectively.

When your gas level reaches red, a Gas Truck will appear. If you 'arrest' it you will be dragged along behind it as your gas level increases, a sort of 'in-flight refuelling'.

On days when you are notified of an APB, you will be given the location where the criminal is likely to turn up. If he or she is not there at first, drive away and they come back, as they will not turn up if you are lying in wait! Be careful as you approach an APB for the first time as they may throw a stick of dynamite at you! You cannot ram an APB off the road from behind: you must pull up alongside and then swerve into them. A Resisto-meter is shown to depict how many times you must ram them. It is therefore important to pick up Speed from the Speed Shops so that you can catch them, but shooting them can sometimes slow them down. You can purchase the gun from the Speed Shop on day 4, and buying further guns allows you to fire more frequently. Be careful not to shoot innocent bystanders, or run over pedestrians as you will get Demerit Points.

On later days you can purchase Radar, which will 'ping' towards any offender going over the speed limit. You can then arrest these offenders. If you have your siren on constantly they might not speed in front of you.

On some highways are sets of roadworks, which have detour signs around them. You can only jump the ditch if you are going at high speed, otherwise you will crash. A word of warning, however, if you have a mid-air collision with another car you will fall into the ditch and explode.

In fields beside the road you will find Donuts and money bags. The Donuts will give you extra time, but if you go over more than one in quick succession you will only get one lot of time. The money bags can give you a variety of bonuses from extra money to 'Demerit Erased' and 'Quota Met'. However, occasionally the money bags are booby-trapped by unscrupulous criminals, but the only way you can find out which is which is to pick one up . . .

Shinobi – Playing tips

Mission 1 Thugs and knifemen – these are the most basic bad guys and can be taken out easily with a shuriken or a punch/kick.

Swordsmen – watch out for these guys as they will often throw their swords at Joe. Either



Killing Ken.

dash straight in and punch/kick them before they can throw or use a shuriken while the sword is in flight and then jump to avoid the sword.

Gunmen – these guys will try and shoot Joe as soon as they see him. Duck under or jump over their bullets and either throw a shuriken or close in and fight hand to hand.

Spidermen – they will attempt to drop on Joe as he goes past. Either jump towards them and hit the fire button so Joe slashes them with his sword or walk under them and turn around quickly to punch/kick them.

Ken Oh (end of mission one baddie) – killing Ken is the aim of mission one. Duck/jump to avoid his fireballs then jump into the air and throw shurikens to hit him in the eyes.

Mission 2 Frogmen – these guys only appear on level three of mission two. They lurk in the water between the pillars and jump up as Joe lands on the pillars. Duck as Joe lands on the pillars and kick/punch them when they reach the top of their jump.

Black Turtle (Giant Helicopter – mission two baddie) – dodge the missiles that the helicopter fires at you and throw shuriken at the nose of the helicopter to inflict damage.

Mission 3 Ninjas – their swords will protect them from Joe's shuriken so you have to crouch down so the stars go under their swords. You will need to hit them twice before you will kill them and watch out when they jump. They will land on top of Joe so move quickly out of the way and attack them when they land.

Buddahs (first part of end of mission three) – the Buddahs move towards you and attempt to push Joe into the lethal forcefield that is behind him. Get close to the Buddahs and fire as quickly as possible, without letting them knock Joe over. Use your Ninja Magic to soften them up and just keep firing as fast as possible!

Metal face – beyond the buddahs is a face on the wall. The only way to harm it is to keep hitting it on the forehead with shuriken. Be careful though. As soon as the first star hits its forehead it will start to move up and down and shoot fireballs at Joe. The fireballs alternate bouncing high then low, so you need to duck and jump in order to avoid them while you fire at the forehead.

Mission 4 Bone men – these skeletons rise up from the floor and throw lethal bones. Jump over the bones and throw shuriken at them to kill them.

Hunchback creatures – these chaps jump towards Joe and bump into him. They don't actually harm Joe themselves but while they are knocking him over he will be vulnerable to attack by other baddies.

Lobster (mission four baddie) – the lobster is a big sword wielding samuri dressed in armour. To kill him jump in the air and throw shuriken at the top of his helmet.

Mission 5 Monk – this guy appears with a staff which he twirls around as he advances on Joe. Crouch down and when the Monk closes in kick him.

Nakahama – he is Joe's old mentor who turned to evil and is now the head of the terrorist organisation. Joe must defeat him three times before he actually dies. Nakahama will run towards you very quickly and try to kick or punch Joe. Throw stars at him as quickly as possible and then run away. As he jumps over you reverse direction and run away before starting to throw stars at him again.

Bards Tale 1 – to get into Mangars Tower go to the sewers level 3 and go to 16N 17E where you will find stairs up.

Buy the clue book – 5 from Customer Services, 0753 46465.

Archon Collection – if you are playing the light side stay on the white squares and vice versa for the dark side as you will be more powerful.

Skate Or Die – in the Jam beating Lester to a pulp is more important than setting a good time.

Arctic Fox – knock out the sensors as quickly as possible.

Find your way around Total Eclipse and Dizzy II with a little help from our diagrams.

Total Eclipse

1. Doors directly touching the rooms on the map are at the ground floor of the room. Those connected to the room by a line are raised above floor level.

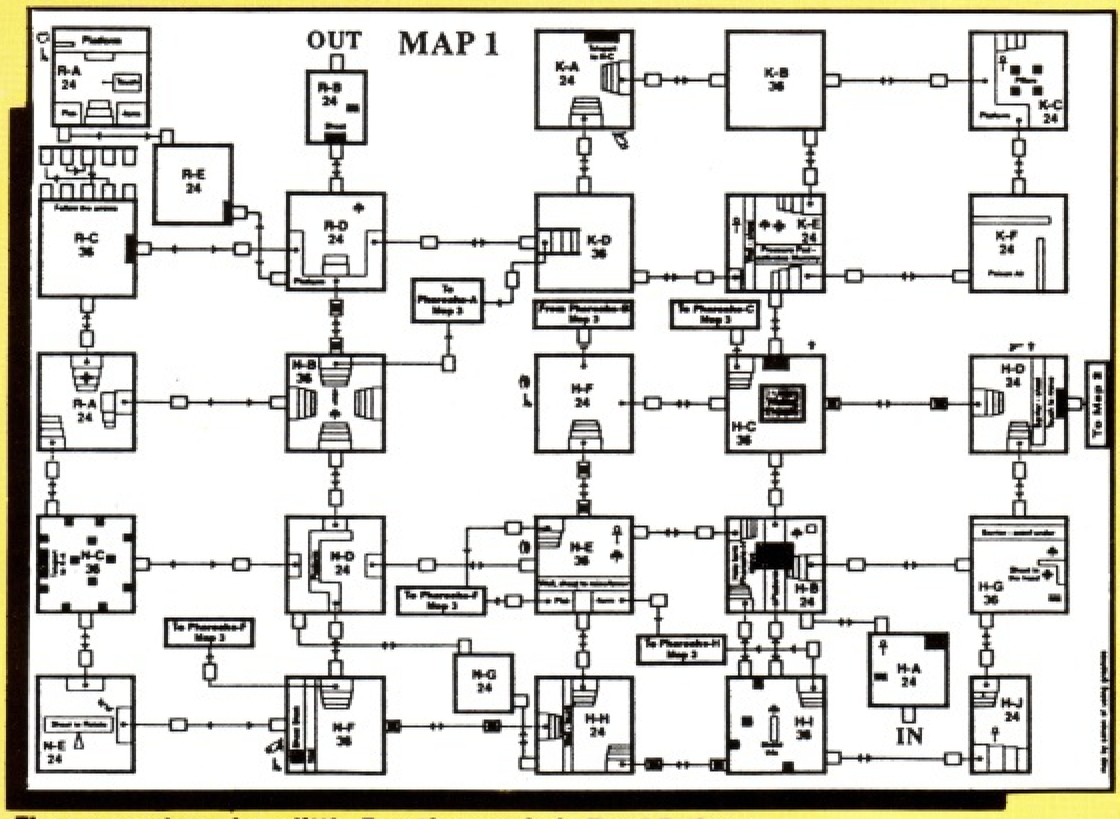
All doors have a solid platform in front of them but raised doors do not necessarily have a stairway up to them.

Some stairways are not initially visible and must be formed by shooting switches.

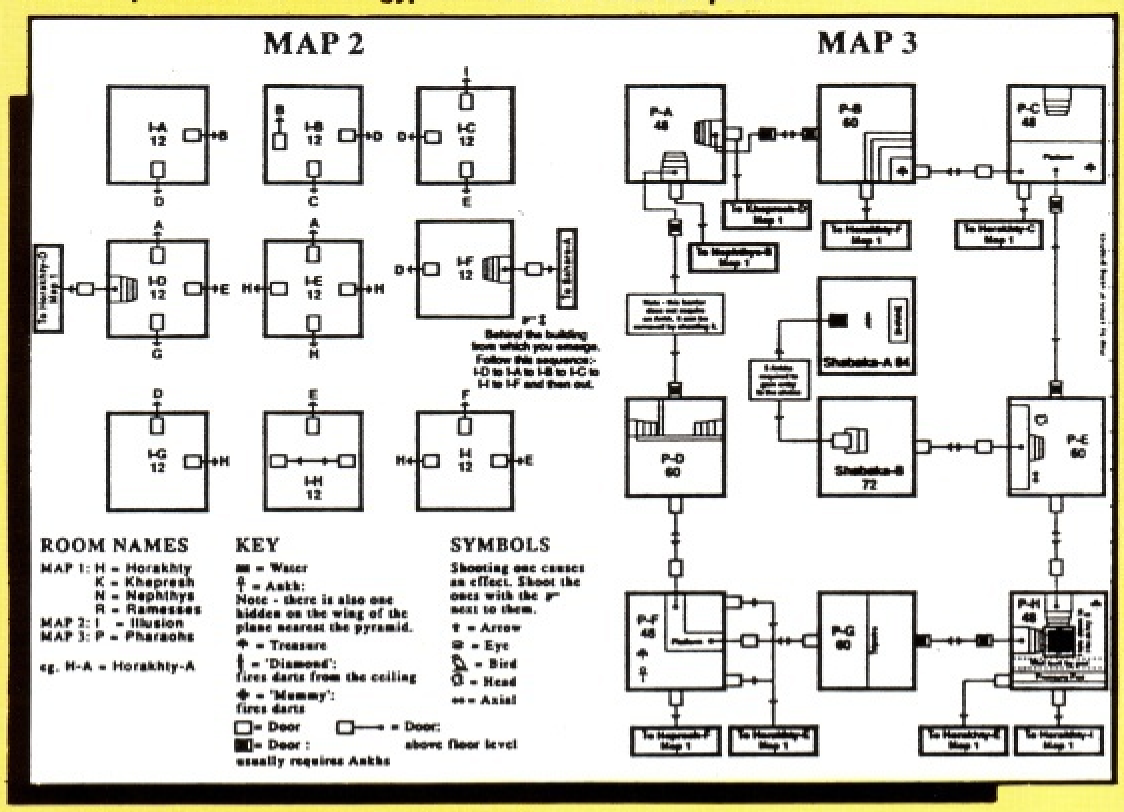
2. I could only find seven Ankhs and 5 of these are required to get into the final chamber.

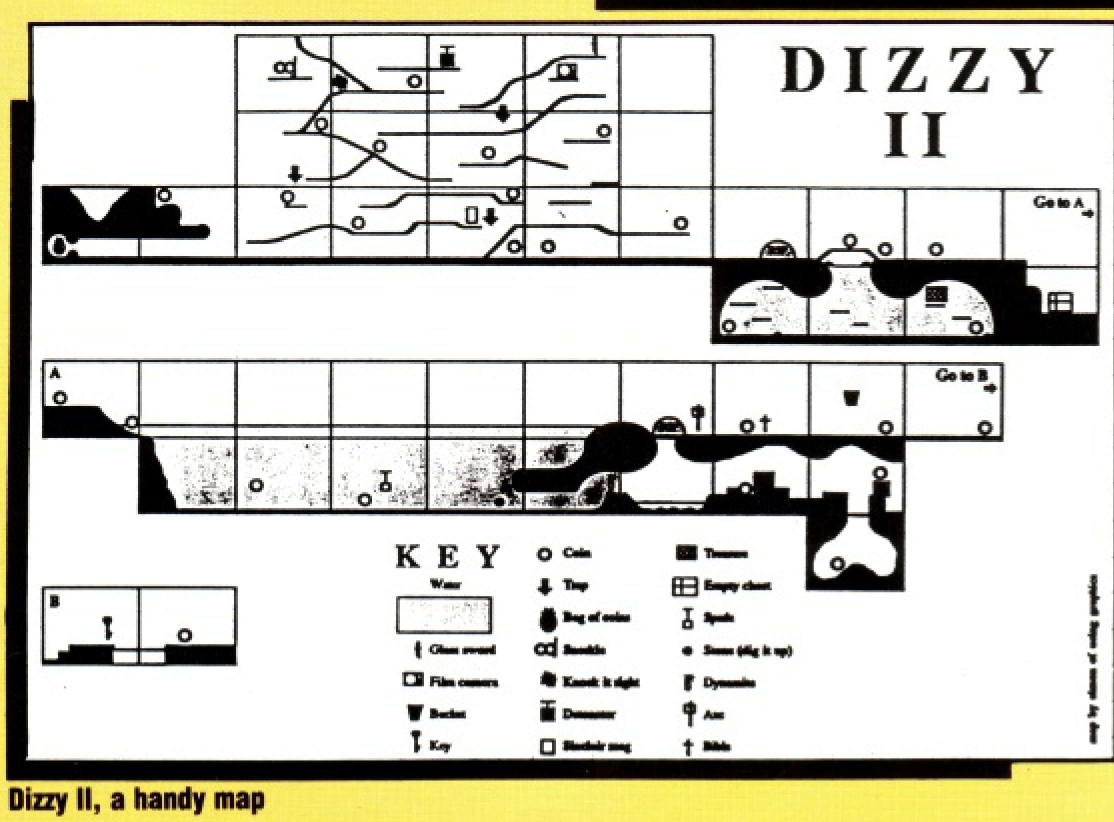
There is no need to lose an Ankh before 'Pharaohs-A' in Map 3. All rooms before this can be accessed without using an Ankh.

3. The rooms are named using one name for a group of rooms and rooms within the group are distinguished by an alphabetical series. I abbreviated the first name to its initial. The numbers included in the rooms are the height of the room in cubits above sea level.



Three maps to make a little Egyptian music in Total Eclipse.





Dizzy II, a handy map

4. I split the map into 3 parts. It's not a natural split but I found it most convenient. Forgive any lack of clarity in the map. Mapping a 3-D pyramid in 2-D is not easy.

5. Not all stairs have a bottom step. This means you can go down them but not up again. Some doors can only be opened from one-side. For this reason you must open the door in the chamber at the back of the pyramid, to successfully complete the game.

6. Except for the mummy in 'Horakhty-G' you can't destroy the dart firing traps so just brave them. You can go around the pressure pad by shooting the wall in 'Khepresh-E'.

Hairy Hacker's Christmas Special



Vyk Olliver has compiled a giant edition of the Hairy Hacker's Haunt to help you beat those baddies. So put down that mince pie and get poking.

Christmas greetings, ye fellow hackers. Once more it is the season of goodwill to all men, and real bad news if you look like a mince pie. But fear not, for this month there are many goodies, and the odd map, with which to stuff your Christmas stocking. Yes, ye will be well and truly stuffed.

If you remember, I put out a request last year for some of "Mighty" Joe Garner's efforts. Well, he sent them in, they were lost, found, subject to public inquiry, buried in a peat bog and have now been sent in again.

The bad news is that some of them won't load on my 464, so the world will have to live over Christmas without a 'best score' feature and high score tables for *Storm*. Still, we are able to bring you the Infinite energy megapoke for it, and it looks like this:

SEE FIG 1 BELOW

Mighty Joe's luck was out this month with the tape recorder, as his Aliens pokette and boulderdash dasher were similarly excreted upon, refusing to load despite re-aligning the tape deck, scrubbing the heads (of the tape deck!) with surgical spirit, and invocations to the Great God Glitch. The *Sorcery* pokeykins remained relatively unscathed, though from the look of it, Mighty Joe has been hacking the messages again! Still, see for yourself what he's done to it:

SEE FIG 2 PGE 39

Note to all those wonderful people sending stuff in: Try to keep the lines narrow so that they'll all fit in one column in the magazine huh? Joe's pokes are great, but he has a tendency to only stop putting data on the line when his 464 beeps at him, and I have to split 'em up.

Sorcery – also got "hexed" by Joe, with less shinnanagins on the high score front. This is for disc versions only, which is not surprising really, as there is no tape version:

SEE FIG 3 PGE 40

This is rapidly in danger of becoming the "Mighty Joe Strikes Again" show, especially with the fast approaching disc poke for *Monty on the Run*, which has nothing to do with food poisoning. The pokette in question gives you infinite lives, but just to make sure you have to do something, you still have to collect the gasmask, passport, jetpack, rope, and rum (obviously the Christmas spirit is that) in order to complete. Yur 'tiz:

SEE FIG 4 PGE 40

```
1 REM'STORM poke V2.0 copyright J.P.Garner (The Mighty Joe)
2 REM'Indestructability (infinite health) for both players
9 a=&45
10 READ b$:IF b$="end" THEN GOTO 15
11 POKE a,VAL("&"+b$):a=a+1:c=c+VAL("&"+b$):GOTO 10
12 DATA 3e,ff,cd,6b,bc,06,00,21,00,1,11
13 DATA 00,c0,cd,77,bc,2a,42,0,cd,83,bc
14 DATA cd,7a,bc,c9,end
15 POKE &100,ASC("A")
20 DATA 21,c0,35,22,42,00,cd,45
21 DATA 00,21,74,7d,22,42,00,cd
22 DATA 45,00,21,00,55,22,42,00
23 DATA cd,45,00,21,70,01,22,04
24 DATA 02,00,cd,45,00,21,a4,14
25 DATA 3e,3f,77,23,3e,21,77,23
26 DATA 3e,ff,77,23,3e,ff,77,23
27 DATA 21,29,18,3e,3f,77,23,3e
28 DATA 21,77,23,3e,ff,77,23,3e
29 DATA ff,77,23,c3,70,01,end
31 a=&62
32 READ b$:IF b$="end" THEN GOTO 50
33 POKE a,VAL("&"+b$):a=a+1:c=c+VAL("&"+b$):GOTO 32
50 REM
60 POKE &100,ASC("A")
1000  IF c<>8801 THEN PRINT "BY MY GREAT POWERS I'VE DETECTED  AN
ERROR IN THE DATA" ELSE CALL &62
```

FIG 1

Nethermore!

Next in line for "the treatment" is Hewson's diamond-'em-up *Netherworld*. The pokeykins below offers infinite lives, wall bashers, demon bashers, and time. The clock seems to have some form of zombie factor in it, and the last digit refuses to lie down and die, but this doesn't stop the poke from working:

SEE FIG 5 PAGE 41

Well, that about wraps it up for the Mighty Joe for this month. Our contribution to the J. Garner Christmas Present fund will be forthcoming, though possibly arriving after Christmas.

Another frequent name in this column is John "Hackman" Girvin from Belfast. Well, his typewriter has died, and he hasn't got a printer. Mere things like this don't stop a real hacker from getting his stuff through, and I hope I've read his handwriting correctly. His effort is a Mega-



poke cassette, arriving just in time for the bumper Christmas edition. Now, you'll definitely have seen some of these pokettes before, but that was probably before you bought the game, and now you can't find the right ACU can you? See, I am a thoughtful soul when the fancy takes me.

John's collection ranges from the bog-standard infinite life pokette, to a not-quite-so-bog-standard invulnerability to eating toilets. All his own work too.

First in line for a de-coke, full tune and rebore is *Afterburner*. All you keen top-gunners now get bolt-on goodies like infinite lives and missiles. The best bit though is the part that makes your F-14 completely missile-proof. Who needs a stealth bomber with all that lot?

SEE FIG 6 PGE 41

And now a pokeykins to make *Rastan* a little fairer (a rastan-fairian?). The big guy with the natty fur boots gets even more

```
1  REM'  infinite energy for sorcery. copyright  1987  J.P.GARNER
(THE MIGHTY JOE)
2  REM'  don't worry about your energy doing  funny  things-  you
won't die
3  REM' as always lines 100-999 may be missed out but do  put  in
line 1000
10 CLS
20 DATA 06,0b,11,00,c0,21,40,01
21 DATA cd,77,bc,21,4a,01,cd,83
22 DATA bc,cd,7a,bc,3e,18,32,86
23 DATA 0b,3e,a7,21,f6,0b,77,23
24 DATA 77,21,80,10,77,23,77,21
25 DATA 56,16,77,23,77,c3,40,0,end
40 a=&70
50 READ b$:IF b$="end" THEN GOTO 70
60 POKE a,VAL("&"+b$):a=a+1:c=c+VAL("&"+b$):GOTO 50
70 a$="SORCERY.BIN"
80 FOR a=1 TO LEN(a$):POKE &13F+a,ASC(MID$(a$,a,1)):NEXT
90 POKE &40,&C3:POKE &41,&4A:POKE &42,1
100 DATA 11,e8,1b,21,00,c8,cd,5e
101 DATA 00,11,10,1d,21,00,d8,cd
102 DATA 5e,00,21,00,d0,11,20,05
103 DATA cd,5e,00,c3,4a,01,7e,a7
104 DATA c8,12,13,23,c3,5e,00,end
110 a=&40
120 READ b$:IF b$="end" THEN GOTO 150
130 POKE a,VAL("&"+b$):c=c+VAL("&"+b$)
140 a=a+1:GOTO 120
141 DATA 20,20,20,20,20,20,20,20
142 DATA 20,20,20,20,20,20,20,20
143 DATA 20,20,20,48,41,43,4B,45
144 DATA 44,20,42,59,20,54,48,45
145 DATA 20,4D,49,47,48,54,59,20
146 DATA 4A,4F,45,21,20,20,20,20
147 DATA 20,54,48,45,20,4D,49,47
148 DATA 48,54,59,20,4A,4F,45,20
149 DATA 53,54,52,49,4B,45,53,20
150 DATA 41,47,41,49,4E,21,20,20
151 DATA 20,20,4E,4F,57,20,46,4F
152 DATA 52,20,41,20,53,4C,49,47
153 DATA 48,54,20,41,4C,54,45,52
154 DATA 41,54,49,4F,4E,20,20,20
155 DATA 59,4F,55,20,41,52,45,20
156 DATA 4D,49,47,48,54,59,20,4A
157 DATA 4F,45,20,43,41,4E,20,59
158 4F,55,end
160 a=&C800
161 READ b$:IF b$="end" THEN GOTO 170
162 POKE a,VAL("&"+b$):c=c+VAL("&"+b$):a=a+1:GOTO 161
165 DATA 2E,2E,2E,54,48,45,20,4D
166 DATA 49,47,48,54,59,20,4A,4F
167 DATA 45,2E,2E,2E,2E,99,99,99
168 DATA 2E,2E,2E,2E,53,54,52,49
169 DATA 4B,45,53,20,41,47,41,49
170 DATA 4E,2E,2E,2E,2E,99,99,98
171 DATA 4A,4F,45,2E,2E,2E,2E,2E
172 DATA 2E,2E,2E,2E,2E,2E,2E,2E
173 DATA 2E,2E,2E,2E,2E,1,1,1,44
174 DATA 41,56,45,20,54,48,45,20
175 DATA 47,4F,4F,44,2E,2E,2E,2E
176 DATA 2E,2E,2E,0,end
180 a=&D800
190 READ b$:IF b$="end" THEN GOTO 1000
```

FIG 2

macho with infinite lives and invulnerability to everything short of pulling the plug out. This is on the Taito coin-op version mind you, so don't whinge at me if it doesn't work on any others. John did this one in 1 hour 18 minutes!

SEE FIG 7 PGE 41

Lightening the burden in Firebird's *Enlightenment* (called Druid II by those in the know) is this bijou-pokette. Hasrinaxx gets help bashing Acamantor and the Demon Princess (they're the baddies, not something to do with a bad copy of "Batdance") by way of mysterious infinite energies. You're OK, but your golem or elemental can still have a real rough time to the point of snuffing it, so be careful out there:

SEE FIG 8 PGE 41

Savaged Again

We had this one a couple of months ago by Michael Gledhill. John's version hacks all three levels, sussing out which level it's going to hack as it goes. Clever

stuffs eh? Just run the pokette with your game in the tape deck, and Robert's yer father's brother, or something like that.

Level one gets infinite lives, invulnerability to small greeblies, and total greeblie removal as its options. Level two gets infinite lives and invulnerability. Level three "only" gets infinite lives.

SEE FIG 9 PAGE 41

Last month, we turned *Harrier Attack* into a far happier, harrier, and this month, Joe's last pokette is a make-Space-Harrier-less-hazardous hack. It gives you infinite lives, and makes you totally indistructabubble:

SEE FIG 10 PGE 42

For all that lot, John'll have to make do with the Extra Special Christmas Hack of the Month as I can't award medals. Watch the old postie access hole, John!

Christmas at The Hackery would not be complete without some form of pokette from Matt Cawley. There's nothing like a good poke from Matt, and this one is nothing like . . .

Seriously though, this is the disc version of the Cybernoid II pokette. Don't try running it on a tape version, 'cos it won't work if you do. Use John's poke (a page or so back).

SEE FIG 11 PGE 42

By the way Matt, you put "POKE addr,byte" in on lines 30 and 40. Presumably some form of backup. Still, the rest of the poke is excellent, and instructions are built in. Don't forget folks, save the poke (preferably NOT on the Cybernoid II disc) before you run it.



The bit on line 70 saying CALL &BB18 calls the ROM routine to wait for a key. It's much simpler than 'WHILE INKEYS-="":WEND', as long as you get the numbers right. Rewards for effort should have gone last month.

Lastly, as it's Christmas, I'll spare you the joke about the most unreliable part of a 464 being the nut that holds on the joystick. Instead, have a computerised Christmas card from us lot:

SEE FIG 12 PGE 42

Love 'n' stuff, Vax, Suz & Kate.

```
1  REM'  sorcery+  (disc) poke. copyright  1988  J.P.Garner  (The
Mighty Joe)
2 REM' lines 100-160 can be missed out.
3 REM' insert sorcery+ disc and run this
10 MEMORY &7FFF:LOAD "sorceryp",&8000
20 POKE &8013,&11:POKE &8015,&80:POKE &7F96,&C9:CALL &8000
30 POKE &8013,&18:POKE &8015,&F8:POKE &8010,&85:CALL &8000
40 POKE &8063,&C9:CALL &8018
50 POKE &4067,&48:POKE &4068,&41
60 DATA af,32,67,78,32,d9,85,32,31,86,c3,0,70
70        FOR        a=&4148        TO        &4154:READ        b$:POKE
a;VAL("&"+b$):c=c+PEEK(a):NEXT
100 DATA 1,48,0,11,26,95,21,70,41,ed,bo,c3,0,70
110        FOR        a=&4152        TO        &415F:READ        b$:POKE
a,VAL("&"+b$):c=c+PEEK(a):NEXT
120 DATA 54,48,45,2e,4d,49,47,48,54,59,2e,4a
125 DATA 4f,45,2e,2e,2e,2e,2e,2e,2e,99,99,99
130 DATA 43,52,41,49,47,2e,4f,42,52,49,45,4e
135 DATA 2e,2e,2e,2e,2e,2e,2e,2e,2e,99,99,98
140 DATA 44,41,56,45,2e,54,48,45,2e,47,4f,4f
145 DATA 44,2e,2e,2e,2e,2e,2e,2e,2e,99,99,97
150        FOR        a=&4170        TO        &41B7:READ        b$:POKE
a,VAL("&"+b$):c=c+PEEK(a):NEXT
160 FOR a=&4148 TO &4200:PRINT HEX$(a),HEX$(PEEK(a)):NEXT:END
1000 IF c=1388 OR c=7666 THEN CALL &4000 ELSE MODE 2:PRINT "check
the data before you cast any spells !"
```

FIG 3

```
1  REM 'MONTY ON THE RUN, inf. lives. Copyright  1988  J.P.Garner
(The Mighty Joe)
2 REM ' lines 100-999 inclusive can be excluded
3 REM 'put in monty disc and run this.
10 MODE 1
15 OPENOUT "a"
20   MEMORY   &7000:FOR  a=0  TO  15:INK   a,0:NEXT:MODE   0:LOAD
"motrcde.sbf",&C000
30 LOAD "motrdcd.sbf",&70E2
40 CLOSEOUT
50 POKE &DC17,&A7
60  DATA 06,c,11,80,5,21,40,1,cd,77,bc,21
62  DATA 80,5,cd,83,bc,cd,7a,bc,c3,0,c0,end
65  a=&70
70  READ b$:IF b$="end" THEN GOTO 80
75  POKE a,VAL("&"+b$):a=a+1:c=c+PEEK(a-1):GOTO 70
80  a$="motrdata.sbf"
90  FOR a=1 TO LEN(a$):POKE &13F+a,ASC(MID$(a$,a,1)):NEXT
100 DATA 4D,49,47,48,54,59,20,4A
101 DATA 4F,45,44,41,56,45,20,54
102 DATA 20,47,20,20,43,52,41,49
103 DATA 47,20,20,20,20,20,4E,49
104 DATA 4b,49,20,20,20,20,20,20
110  FOR  a=&7D75 TO &7D75+79 STEP 20:FOR b=0 TO  9:READ  a$:POKE
b+a,VAL("&"+a$):c=c+PEEK(a+b):NEXT:NEXT
130 DATA 20,20,20,20,20,48,41,43
131 DATA ,4b,45,44,20,42,59,20,20
132 DATA 20,20,20,20,0D,82,20,20
133 DATA 20,54,48,45,20,4D,49,47
134 DATA 48,54,59,20,4A,4F,45,20
135 DATA 20,20,0D,85,20,20,20,20
136 DATA 20,48,41,52,44,20,20,4C
137 DATA 55,43,4B,20,20,20,20,20
138 DATA 0D,88,4B,52,45,4D,4C,49
139 DATA 4E,20,20,20,43,4F,43,4B
140 DATA 20,20,20,55,50,53
160         FOR         a=1         TO         86:READ         b$:POKE
&7D0F+a,VAL("&"+b$):c=c+PEEK(&7D0F+a):NEXT
1000  IF c<>9464 AND c<>2370 THEN INK 0,1:INK  1,26:MODE  2:PRINT
"Monty  won't be running until you've checked the data....  Press
any key":CALL &BB18:LIST ELSE CALL &70
```

FIG 4

```
1 'NETHERWORLD hacks
2 'By John Girvin
3 'March 1989
4 'I beat you to it, Jemmy !
5 '
10 MODE 0:OPENOUT"D":MEMORY &3FBF
20 CLOSEOUT:LOAD"!netherw.bin",&3FC0
30 POKE &415B,64:POKE &415C,0
40 MODE 1:CALL &BC02
50 INPUT"Start with how many lives (0-255)";lives
60 RESTORE:addr=&40
70 READ byte$
80 IF byte$="WURLDE" THEN GOTO 130
90 IF byte$="**" THEN byte$=HEX$(lives,2)
100 POKE addr,VAL("&"+byte$)
110 addr=addr+1
120 GOTO 70
130 CALL &3FC0
140 '
150 '*** LEAVE 170 IN ***
160 '
170 DATA af
180 'Infinite lives
190 DATA 32,bf,27
200 'Infinite wall bashers
210 DATA 32,74,21
220 'Infinite demon bashers
230 DATA 32,28,22
240 'Infinite time
250 DATA 32,b2,64,3e,c3,32,b6,64
260 '
270 '*** LEAVE 290-330 IN ***
280 '
290 DATA 3e,**,32,0f,29,a4,48,4c
300 DATA 46,03,89,c3,00,01
310 DATA WURLDE
```

FIG 5

```
1 'AFTERBURNER hacks
2 'By John Girvin
3 'April 1989
4 '
10 MODE 1:MEMORY &99C4
20 LOAD "!afterbnr",&99C5
30 RESTORE:addr=&BE80
40 READ byte$
50 IF byte$="AFTERBURNER" THEN GOTO 90
60 POKE addr,VAL("&"+byte$)
70 addr=addr+1
80 GOTO 40
90 CALL &BE80
100 '*** LEAVE 110-180 IN ***
110 DATA 3e,c3,21,8e,be,32,16,bd
120 DATA 22,17,bd,c3,c5,99,cd,37
130 DATA bd,21,00,00,22,4b,a6,21
140 DATA a0,be,22,4e,a6,c3,08,a6
150 DATA dd,21,b8,a8,11,ab,00,cd
160 DATA 47,a8,21,c0,be,22,61,a9
170 DATA c3,e2,a8,dd,cb,07,ae,c3
180 DATA 9f,21,3e,32,32,a4,47,c9
190 'Infinite lives
200 DATA 21,00,00,22,a7,20,22,a8
210 DATA 20
220 'Infinite missiles
230 DATA 21,ba,be,11,63,27,01,06
240 DATA 00,ed,b0
250 'Invulnerability
260 DATA 21,b3,be,11,24,20,01,07
270 DATA 00,ed,b0
280 '*** LEAVE 290-300 IN ***
290 DATA a4,48,4c,46,04,89,c3,00
300 DATA 46,AFTERBURNER
```

FIG 6

```
1 'RASTAN hacks
2 'By John Girvin
3 'July 1989
4 '
10 MODE 1:MEMORY &9935
20 LOAD"!rastan",&9936
30 RESTORE:addr=&BE80
40 READ byte$
50 IF byte$="RASTAN" THEN GOTO 90
60 POKE addr,VAL("&"+byte$)
70 addr=addr+1
80 GOTO 40
90 CALL &BE80
100 '*** LEAVE 110-170 IN ***
110 DATA 3e,c3,21,8e,be,32,16,bd
120 DATA 22,17,bd,c3,36,99,cd,37
130 DATA bd,21,00,00,22,43,a5,21
140 DATA a0,be,22,46,a5,c3,08,a5
150 DATA dd,21,b1,a7,11,00,01,cd
160 DATA 40,a7,21,b3,be,22,5a,a8
170 DATA c3,db,a7
180 'Infinite lives
190 DATA af,32,63,13,32,f0,23
200 'Invulnerability
210 DATA af,32,5b,13,3e,a7,32,cf
220 DATA 23
230 '*** LEAVE 240-250 IN ***
240 DATA a4,48,4c,46,07,89,c3,22
250 DATA 48,RASTAN
```

FIG 7

```
1 'ENLIGHTENMENT (DRUID II) hack
2 'by John Girvin
3 'December 1988
4 '
10 MEMORY &3DFF
20 MODE 1
30 LOAD"!enlight1"
40 addr=&BE00
50 READ byte$
60 IF bytes$="ORB" THEN CALL &BE00
70 POKE addr,VAL("&"+byte$)
80 addr=addr+1
90 GOTO 50
100 '
110 '*** LEAVE ALL LINES IN ***
120 '
130 DATA cd,4c,3f,2a,39,00,22,22
140 DATA be,f3,21,14,be,22,39,00
150 DATA fb,c3,00,3e,f5,c5,e5,06
160 DATA f6,ed,78,b7,28,06,e1,c1
170 DATA f1,c3,4a,47,f3,2a,22,be
180 DATA 22,39,00,21,33,be,22,99
190 DATA 01,18,eb,21,2d,88,11,86
200 DATA 9b,01,97,74,ed,b8,21,00
210 DATA 00,af,32,85,31,22,86,31
220 DATA 32,7a,32,32,a2,34,32,fe
230 DATA 50,c3,60,5d,0c,88,48,4c
240 DATA 46,ORB
```

FIG 8

```
1 'SAVAGE hacks (all levels)
2 'By John Girvin
3 'May 1989
4 '
10 MEMORY &9FFF:LOAD "!",&A000
20 POKE 41186,32:POKE 41187,161
30 lev=PEEK(&A0ED)-48:addr=&A120
40 ON lev GOSUB 60,70,80
50 RESTORE 430:GOSUB 90:CALL &A000
60 RESTORE 130:GOSUB 90:RETURN
70 RESTORE 240:GOSUB 90:RETURN
80 RESTORE 340:GOSUB 90:RETURN
90 READ byte$
100 IF byte$="SAVAGE" THEN RETURN
110 POKE addr,VAL("&"+byte$)
120 addr=addr+1:GOTO 90
130 '
140 '*** LEVEL 1 CHEATS ***
150 '
160 'Infinite lives
170 DATA 3e,18,32,ce,03
180 'Invulnerable to small monsters
190 DATA af,32,18,08
200 'Remove small monsters
210 DATA 3e,c9,32,61,fe
220 '*** LEAVE 230 IN ***
230 DATA SAVAGE
240 '
250 '*** LEVEL 2 CHEATS ***
260 '
270 'Infinite lives
280 DATA af,32,63,0d,3e,c3,32,67
290 DATA 0d
300 'Invulnerability
310 DATA 3e,c3,32,3a,0d
320 '*** LEAVE 330 IN ***
330 DATA SAVAGE
340 '
350 '*** LEVEL 3 CHEATS ***
360 '
370 'Infinite lives
380 DATA 3e,a7,32,2a,e7,3e,c3,32
390 DATA 2e,e7
400 '*** LEAVE 410 IN ***
410 DATA SAVAGE
420 '
430 '*** LEAVE 440 IN ***
440 DATA c3,00,01,SAVAGE
```

FIG 9

```
1 'Space Harrier Tape Poke.by J.Garner.
2 ' Rewind to last file on tape
3 'Then run. Couldn't be bothered to do
4 'my name on this one. So type it all in.
5 '
10 OPENOUT "a
20 MEMORY 949
30 LOAD "!",950
40 POKE &D74,&A7
50 POKE &D4D,&3C:POKE &D4E,&32:POKE &D4F,&C8
60 POKE &D50,&5:POKE &D51,&C3:POKE &D52,&CD
70 POKE &D53,&5
90 CALL 950
```

FIG 10

```
1 'Cybernoid II (disc)
2 'by Matt Cawley
10 addr=&BF00
20 READ byte$:IF byte$="MORRISSEY" THEN 60
30 byte=VAL("&"+byte$)
40 POKE addr,byte
50 addr=addr+1:GOTO 20
60 MODE 2
70  PRINT  "Insert Cybernoid II disc into drive A.and press any
key.":CALL &BB18
80 LOAD"disc":CALL &BF00
90 '  *** leave ***
100 DATA 21,09,BF,22,32,A5
110 DATA CD,10,A4
120 ' *** pokes ***
125 ' infinite lives
130 DATA AF,32,6B,2B
135 'infinite ammo
140 DATA AF,32,2F,16
145 ' immunity
150 DATA 3E,C9,32,D6,2A
155 ' nothing stationary fires
160 DATA 3E,C9,32,3F,29
165 ' fast game
170 DATA AF,32,44,01
175 ' no pirates
180 DATA 3E,C9,32,AA,35
185 ' no bouncing thingies (horiz)
190 DATA 3E,C9,32,43,20
195 ' no bouncing thingies (vert)
200 DATA 3E,C9,32,43,20
205 ' no cattlepiddlers
210 DATA 3E,C9,32,EA,2D
215 ' bouncing bombs last forever
220 DATA 3E,C9,32,00,1A
225 ' rockets do not fire
230 DATA 3E,C9,32,BE,34
235 ' rockets disappear instead of firing
240 DATA 3E,C9,32,BE,33
250 ' *** leave ***
260 DATA C3,42,00,43,72,69
270 DATA 6D,70,20,79,6F,75
280 DATA 72,20,68,61,69,72
290 DATA 20,74,6F,64,61,79
300 DATA 2E,MORRISSEY
```

FIG 11

```
100 INK 0,0:PEN 1:PAPER 0:CLS:MODE 0
110 INK 5,20:PRINT CHR$(23);CHR$(1);
120 BORDER 0:PRINT CHR$(22);CHR$(1);
130 TAG
140 y=350
150 READ a$
160 IF a$="*" THEN 470
170 x=(20-LEN(a$))*16
180 MOVE x,y
190 FOR i=1 TO LEN(a$)
200 IF RND>0.5 THEN 240
210 oy=RND*400
220 IF RND>0.5 THEN ox=0 ELSE ox=640
230 GOTO 260
240 ox=RND*640
250 IF RND>0.5 THEN oy=0 ELSE oy=400
260 b$=MID$(a$,i,1)
270 IF b$=" " THEN 370
280 PLOT -10,-10,RND*13+1
290 REM This is where chars fly...
300 FOR j=1 TO 0 STEP -0.1
310 MOVE ox*j+x*(1-j),oy*j+y*(1-j)
320 PRINT b$;
330 MOVE ox*j+x*(1-j),oy*j+y*(1-j)
340 PRINT b$;
350 NEXT j
360 PEN 2:MOVE x,y:PRINT MID$(a$,i,1);:PEN 1
370 x=x+32
380 NEXT i
390 y=y-24
400 GOTO 150
410 DATA "Ye Merrie Christmas"
420 DATA "From Vax, Suz, Kate"
430 DATA "Bruno, Othello and"
440 DATA "all the animals"
450 DATA "(and staff) at ACU"
460 DATA *
470 REM The snowflakes...
480 x=INT(RND*160)*4-1
490 y=399
500 PLOT x,y,4
510 y=y-2:IF y<200 THEN 480
520 IF TEST(x,y)=0 THEN PLOT x,y+2,4:GOTO 500
530 IF RND>0.5 THEN PLOT x,y-2,4:GOTO 500
540 GOTO 480
```

FIG 12

After The War

Yet another post-apocalyptic scenario as you seek out evil Prof McJerrin in this beat-em-up with big sprites.



New York, New York, so good they blew it up. Yes, this is Manhattan in the year 2019, and somebody has just dropped the big one. There's no longer a housing problem in the Big Apple as there's no longer any houses. Or people. A few poor souls still survive, although with the radiation levels rising by the minute, planet Earth and everybody on her is doomed, including the post-apocalyptic hero of the asphalt jungle — Jonathan Rogers. What an inspired name. But wait, there is a chance, a slim one, mind, and very risky. Only a fool or a madman would attempt it. If our hero can reach the HQ of the psycopathic Professor McJerrin, overcome its defences and take control of the XV-238 rocketship, then he can escape to the safety of the outer colonies. Who said the 'B' movie was dead?



This is the grim scenario to *After the War,* a horizontally scrolling, heavy-on-the-recoil game from those combat junkies at Dinamic.
The game begins with you controlling 'Jungle' Rogers as he fights his way across the Manhattan wastelands, facing up to Radio Gladiators who try to mug him (some habits die hard in New York) or blow him up with sticks of dynamite. The usual assortment of kicks, punches, elbows and flying kicks are at your disposal, and once you get the hang of it biffing up a gang of radioactive ruffians is no more demanding than pushing that funny little red button . . . oops, butter fingers.

There is also a time limit in phase one, for the longer it takes you to dispose of your opponents, the more radiation you receive, and when you've completely irradiated the game ends.

If phase one is completed within the time limit, the action threshold increases to critical as Magnum-wielding punks try to blow you away, attacking simultaneously, without a four minute warning, from both front and rear. Watch out also for more marauding Radio Gladiators and your own depleted energy levels. Phase three is a joystick meltdown all the way to China, as you frantically try to avoid the uniformed guardians of Professor McJerrin's scientific complex, whilst at the same time exchanging fire with your newly aquired FX-Machine Gun.

Wardroids hound you with aerial bombardment, and periodically, hulking great bi-pedal robots bear down to unleash maximum overkill. Yes, things get pretty hectic, and if you survive, as with the two previous phases of the game, you have to defeat the obligatory end-of-level nasty. This gains you access to the XV-238, the last freedom rocketship out of Nowhere City.

Despite a plot as exciting as a nuclear winter. After-the-War is a fast-paced, enjoyable game. The graphics were particularly good for an Amstrad version, making use of large, well defined sprites and colouful backgrounds of devastated Manhattan landmarks.

After the War is a difficult game to master (achieving the critical flying drop kick was almost more than I could manage) and it should keep you and your family in the fall-out shelter easily occupied until the all-clear sounds.

Simon Pipe

ROUND-UP			
NAME	After the War		
SUPPLIER	Dinamic	PRICE	£9.95
89%	68%	62%	69%
GRAFFIX	SONIX	PLAYABILITY	OVERALL





Scapeghost

An adventure game based on a world of ghosts and graveyards.

A cold and frosty-breathed graveyard called me to my misty senselessness. I was weightless. Drifting. Trapped in another social circle where men were ghosts and women were ghosts too, and earthly problems were all too real for a brain that didn't exist. My only option was the CPC. A quiet, unassuming creature which has the ability to run my essential medicine . . . Scapeghost! Scapeghost, from Level 9 Adventures, offers the willing adventurer a chilling romp through acres of nostalgic turf. Alan Chance, a one-time, over-sized, trilby headed, undercover detective, witnesses his own funeral and realises from the careless talk of his so-called mourners that he is being falsely blamed for his own death. The pain. Needle-sharp and gallow-frenzied. Bewildering bursts of probing anxiety. The frustration of being a rooky spook becomes second nature to the player of Scapeghost. It is the ghost's destiny to clear his name, gain revenge and trackdown the gangsters' new hideout. Alan Chance has just three ghostly days.

For those who are familiar with adventure games, the format is not new. For those who have never entered an adventure world, commands are written onto the screen and the answers and ensuing situations are relayed before your eyes by the computer. The first stage of the game is in the graveyard, immediately following the burial of Alan Chance. The swanky detective, weak from a lack of substance, drifts about the place until darkness when he encounters the ghost of Joe Danby, the once merry landlord of The Pig and Whistle. Joe familiarises Alan with the graveyard (that is if you follow him) and introduces a number of the ghostly neighbours. Each neighbour seems to have a problem. The Willmots . . . mousetrapped in marriage, to have and to hold onto their worldly bitterness and constant bickering, reunited in the world of spirits. Colonel Rycroft, troubled in uniform, despairing at the noise and arrogance of the youth-of-today. Tormented by the whisky-swigging, vociferous yobbishness of the local vandals, the Colonel needs your help, as do all the other ghosts.

By continually picking up, increasingly large items, Alan's spiritual powers develop and enable him to solve his neighbours' anxieties using objects that are found along the way. With the successful completion of the first stage, Alan Chance, our trusty hero, has the strength and experience to tackle the outside world.

Stage two, the second day, involves a house in the village which in turn brings certain complications to our stubble-faced detective. The ghost of Luke, the ruffian that Chance accidentally killed, bright lights from cars and buildings and heavy items are just some of the waiting obstacles the old house holds. The aim is to gather clues from the old hideout and scene of Chance's death in an attempt to rectify the inexcusable position in which he has found himself. To discover the location of the gangsters new abode is also high on the list of things to do.

The third stage/day begins with two of the gangsters forcing a priest to exorcise Chance's grave with holy water and mouthfuls of mumbo jumbo. By moving quickly and carefully, Chance can avoid the exorcism and eventually follow the gangsters by getting into their van as they drive from the graveyard. There is however, no need for alarm as being a ghost means that Chance is not subject to the tortuous discomfort of a long journey in the back of a stranger's van.

What is to be done? Where is there to turn and what can you do to stop the gangsters and make them pay? These are all questions that can only be answered by using the detective skills and organic intuition of Alan Chance or the cheat/hint sheet that is provided.

The game disc provides the graphics program on the reverse side. The graphics are clear and well drawn although at times a little repetitive. One has to account though, for the limitations of the CPC and not expect graphics of a more diverse and powerful quality.

This is well recommended. My angst has been eased by the karma the game provided and I have now found my Nirvana. I hope you find yours. Farewell 'til next month.

Basil Bread

ROUND-UP

NAME	Scapeghost		
SUPPLIER	Level 9 Adventures	PRICE	£14.95
86%	N/A	80%	83%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Sporting Triangles

Test your sporting knowledge in this spin-off from the gogglebox. Well 'arry . . . .

Sporting Triangles might sound like a menage a trois at a golf club but in reality it's nothing so fruity or interesting, but rather a quiz game based on ITV's answer to A Question of Sport. Unfortunately for ITV, Sporting Triangles was a fairly witless and pale imitation of the BBC programme, and suffered appropriately.

A game based on this particular sporting quiz show isn't necessarily a bad thing, for one thing you don't have to watch embarrassed sports 'personalities' wondering why their agent got them into this.

On the down side you do have to wait quite some time for the game to load and set itself up, even on disc this takes absolutely ages. There can be up to three human players, with the computer filling in for absentees. The computer plays on three skill levels: average, good and perfect. Or as we discovered, good, very good and unbeatable.

A time limit can be set on each round, which stops dull and oafish players taking forever to answer. Next we go to the select-a-sport section, where each player nominates his fave topic. After that, go make a cup of tea, play a game of chess or something while the questions load. When the inlay says 'please be patient' you know you're in for a long wait.

There are seven rounds to the game: standard question, standard question, hit for six, standard, standard, jigsaw picture, and quickfire question round. For the standard rounds the players throw a dice and follow a marker round a triangular board, marked with colours to indicate subjects. The colours correspond to the three subjects selected by the contestants at the beginning, there being twelve categories.





After a short while the answer is displayed and the player is asked whether they got it right or not. While you have to be honest in a two or three player game, when playing the computer you can cheat as much as it does.

The hit for six round consists of six attempts to answer a question, with six clues, and seven answers in front of you. Naturally, the fewer clues you use, the more points you get.

The jigsaw picture round works similarly with a list of answers and a few pieces of a jigsaw. You are asked to identify the playing area or object, with more pieces being filled in if you get it wrong. Some of the answers border on the ridiculous with totally obscure sports.

The quickfire round is a case of who can get to the buzzer first, and when the computer is on perfect setting it's necessary to hold your finger on the buzzer before the question is finished.

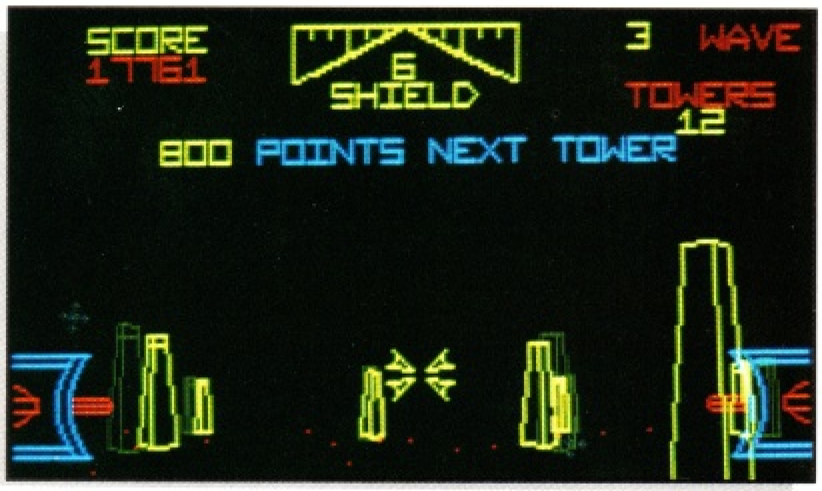
The graphics are all in medium resolution which means that you get 40 columns of easily readable text, but only four colours which makes everything look rather drab, and they are produced so that it looks as though they were ported straight across from the Spectrum.

As a one player game this is far too slow, and not appealing enough to counter the scant satisfaction of beating a computer quiz opponent. Where it does become fun, and a worthwhile purchase is if there are two or three people playing together. So if you have a couple of sports quiz loving friends, have a patient nature, then Sporting Triangles will help you while away the hours until a Question of Sport returns to the TV.

Mark Luckham

ROUND-UP

NAME	Sporting Triangles		
SUPPLIER	CDS	PRICE	£9.99/£14.99
62%	41%	69%	68%
GRAFFIX	SONIX	PLAYABILITY	OVERALL



The Stars Wars Trilogy

A compilation based on the legendary Star Wars films. This is your chance to be Hans Solo.

With another Star Wars anniversary just gone what better time to re-release a trilogy of games based on the three films from George Lucas. Last year probably, but aside from that here's a golden opportunity to pay twenty quid for three games. Yup, as a compilation this doesn't exactly offer value for money.

Off we go with Star Wars, the original vector graphic game with three sections. Shoot Tie fighters in pseudo 3-D, before you are down to the Death Star surface, and take out giant lamp posts. Shoot out all the lights and win a big vandal bonus, before facing the section where you always come a cropper, the trench. Well, a total bleeder this, and no mistake, and no Millenium Falcon to help out either. But catwalks across the trench? Yes the coin-op of the film always did take liberties with the plot. It was all jolly exciting on the 16-bit versions of the game, largely thanks to the responsive control and fast speed. On the Amstrad it isn't. It's like driving a blancmange on London's orbital motorway.

The Empire Strikes Back is more of the wire frame malarky, but with far worse gameplots. Strangely enough the control as you go hunting for walkers, Tie fighters in space, followed by asteroids is much better than the previous game and would have made the game quite playable. Unfortunately there is a great sense of 'so what' after navigating lots of rocks. I mean, it isn't exactly apocalyptic is it. I can't imagine anyone punching the air with excitement because they've avoided that final rock. The audio accompaniment to all this is so tinny and rudimentary that it may as well not be there.

Ho hum. Part three, Return of the Jedi, and a completely different style of game. And a pretty damn good game too. This is all Zaxxon style solid graphic diagonal scrolling action in three parts. To start you must mount your jet bike as you take the part of Princess Leia, with all her lovely outfits as well. You start off going through the forest, avoiding trees, bushes, and Imperial bikers. Be careful not to let them get behind you otherwise kiss goodbye to using the hair rollers again. The fluffy bears of Yendor set traps along the way, and the first person who passes through, activates them for the next person to come a cropper in. Driving down the log tunnel is difficult but rather satisfying.

Make it to the end of the forest and then you go back again, but this time in a walker. It isn't quite as big as it should be, but with all the colour scrolling around it's no wonder. Shoot the small logs, avoid the bigger ones, and then it's on to the Millenium Falcon storming through the reconstructed Death Star, for a last gasp shoot and destroy mission. With a race back out again as flames lick at the hull, and the Death Star blowing apart across the sky, this is more like excitement.

I wouldn't recommended the first two games at all, but Return of the Jedi with its excellent graphics and crisp gameplay is certainly worth getting. Either go out and buy it on its own, or pay an extra fiver and get two very indifferent games as well.

Mark Luckham



ROUND-UP			
NAME	The Star Wars Trilogy		
SUPPLIER	Domark	PRICE	£12.99/£19.99
68%	56%	65%	70%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Picture this

Christmas comes early as Auntie John Kennedy shows how 8K can be as good as 16K.

How would you like to halve the size of your screen files? No fancy data compression routines, just a guaranteed 8K screen file? Well of course this is completely impossible. Or is it?

If you use a lot of digitised pictures then perhaps you are in luck. Digitised pictures are so full of little bits of detail that losing half of them will still make next to no difference. If you don't believe me, take a look at the two wonderful pictures of my good self. One image takes 16K and the other takes 8K. You should be able to tell them apart – now hold them at arm's length. Can you still see 8K worth of difference? Remember, although half the information is missing, the handsome chap is still instantly recognisable.



All that has happened is that of the two hundred lines of screen data, only one hundred have been stored and the other hundred just copied from the line above. Simple, but effective. And the machine code program to Create and Display the data is very simple indeed. The routine HALFSCREEN will copy half the screen data to address &4000, so to save it after compression just type: SAVE "SMALLSCR",b,&40000,&2000

To reconstruct a screen image, the routine DRAWSCREEN should be called after placing some suitable data at address &4000.

There are only a few tricky bits in the program so far. You must remember to switch the upper ROM off if you are looking at the screen memory which occupies the area underneath. It is also good manners to switch this ROM on again after we have played with it. Once again, we make the little Z80 instruction LDIR to do all the work. LDIR must rate as my favourite instruction of all time. It performs the incredibly useful task of copying memory from one address to another, and works thus:

Load DE with the address where the data is to go,

Load HL with the address where the data is already,

Load BC with the number of bytes to be moved.

For example,

```
LD DE,&C000
LD HL,&4000
Ld BC,&0005
LDIR
```

will move five bytes from &4000 to &c000

```
nolist
;
; Screen Compressor for Digitised Pictures
;
; Copyright Auntie John for Amstrad Computer User
;
; Routines:
;
; HALFSCREEN
; Take a normal screen display and store half of it from address
; &4000 and onwards.
;
; DRAWSCREEN
; Take half a screen stored starting at &4000 and re-draw it.
;
; SYNTHSCREEN
; Take half a screen stored starting at &4000 and synthesize a
; full image from it.
;
;

prev_line equ &bc29
next_line equ &bc26

Upper_rom_off equ &b903
Upper_rom_on equ &b900

Top_of_screen equ &c000
Store_address equ &4000

org &3000                   ;Start of code - must be before &4000

.HALFSCREEN
        call Upper_rom_off              ;Turn off top ROM to make sure
                                        ;we examine the screen RAM
        ld hl,Top_of_screen             ;Top of Screen Ram
        ld de,Store_address             ;Start of storage

        ld b,100                        ;Half the 200 screen lines
.loop1  push hl:push bc                 ;Preserve registers
        ld bc,80                        ;Move 80 bytes
        ldir
        pop bc
        pop hl:call nexthl:call nexthl
        djnz loop1                      ;Repeat for all lines

        call Upper_rom_on               ;Turn on Rom

        ret

.DRAWSCREEN
        ld de,Top_of_screen             ;Top of Screen RAM
        ld hl,Store_address             ;Start of screen store
        ld b,99
.loop2  push bc:push de                 ;Preserve registers
        ld bc,80:ldir                   ;Draw first line
        pop de:call nextde
        push hl:push de                 ;Draw it again, but down
        ld bc,80:ldir                   ;one screen line.
        pop de:pop hl:pop bc
        call nextde
        djnz loop2
        ret


.SYNTHSCREEN

;Stage One - Draw every other line

        ld de,Top_of_screen             ;Top of Screen RAM
        ld hl,Store_address             ;Start of screen store
        ld b,99
.loop3  push bc:push de                 ;Preserve registers
        ld bc,80:ldir                   ;Draw a screen line
        pop de:pop bc
        call nextde:call nextde         ;Move down two lines
        djnz loop3

;Stage Two - Make up the data for in-between lines

        call Upper_rom_off              ;Turn off top ROM to make sure
                                        ;we examine the screen RAM

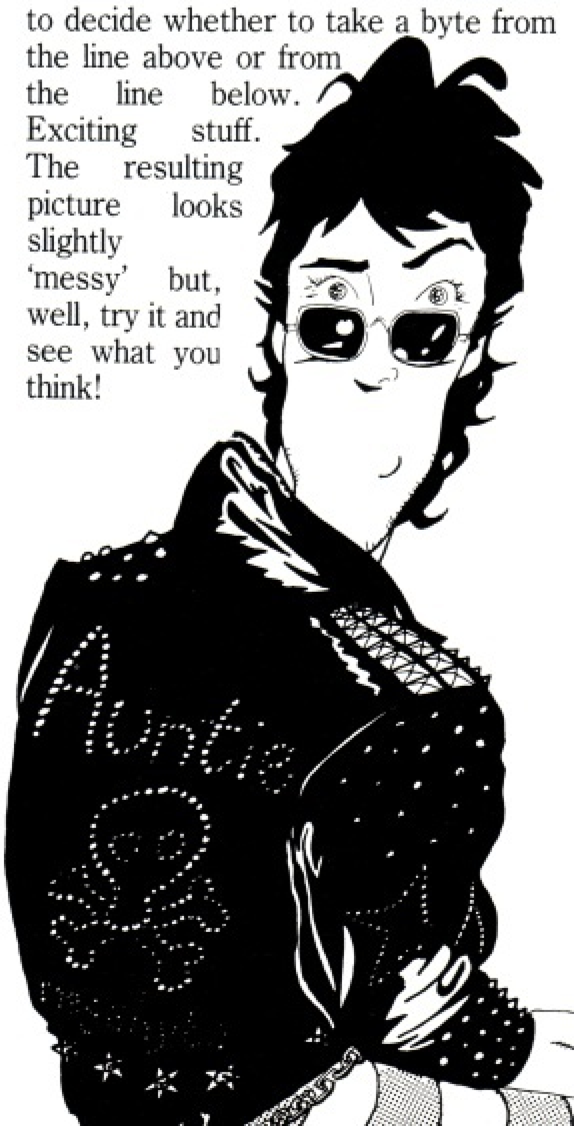
        ld de,Top_of_screen
        call nextde                     ;Move one line down from top
        ld b,98
.loop4  ld c,80
```

After playing around with this program three more ideas presented themselves to me. The first was why not do the same with the horizontal resolution, with a result that 4k is needed for each picture? This technique results in a definite 'de-rezzed' look, but for a quarter of the memory this trade-off will sometimes be worthwhile. The program is left to you as an exercise, because it is really not all that difficult to write.

The second idea was to combine conventional data compression techniques with the special halved and quartered images. Potentially this means the pictures could now take 4K and 2K to store. Again, Run Length Compression is something I've written dozens of programs about, so have a go yourself. Try looking through some back issues of ACU.

The third idea was a way of creating a slightly better quality picture from a halved picture. Instead of just copying the screen line above, why not synthesize a new line, by taking elements from the line above and the line below? This seemed a fun little program to write, needing only a new PRINTHALF routine. So I had a bath to think about it, and wrote it.

It uses the magic 'r' register, which to all intents and purposes returns a random number. We use this number to decide whether to take a byte from the line above or from the line below. Exciting stuff. The resulting picture looks slightly 'messy' but, well, try it and see what you think!



```
.loop5   push bc

         push de:pop hl

         ld a,r                          ;Sneak a random number
         bit 2,a                         ;Check one bit of it
         jr z,lookup
         jr nz,lookdown
.back    ld a,(hl):ld (de),a             ;Draw in byte of pixels
         inc hl:inc de                   ;Move to next byte in line

         pop bc

         dec c:ld a,c
         cp 0:jr nz,loop5
         pop de

         call nextde:call nextde         ;Move down 2 lines

         dec b:ld a,b
         cp 0:jr nz,loop4

         call Upper_rom_on               ;Turn on Rom

         ret

.lookup
         call prev_line
         jr back

.lookdown
         call next_line
         jr back

.nexthl
         call next_line
ret

 .nextde
          push hl
          ex hl,de
          call nexthl
          ex hl,de
          pop hl
 ret
```



Compressed 8K Image.



Compressed 16K Image.

If you are wondering where I get my digitised pictures from, the answer lies in a little black box called VIDI made by a company called Rombo - famous for their ROM boxes. Apparently the price of this little electronic gem is coming down, so make sure you check it out. It takes a video image from a video-recorder or camera, and produces a practically instant image on your CPC. Of course, I can't mention Rombo without mentioning the delightful Verona and Leslie. Well, I could I suppose. But I won't.
Bye. ●

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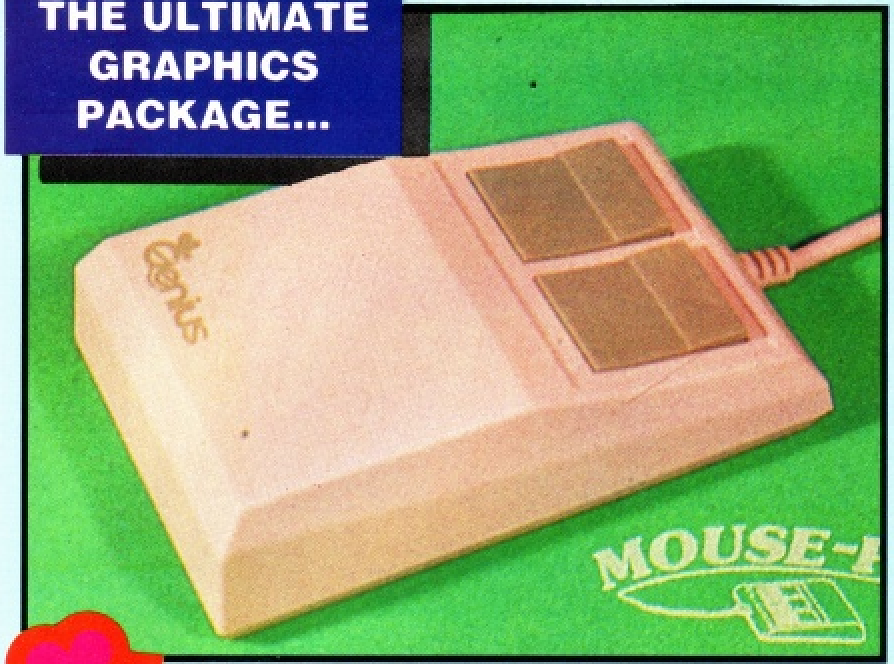
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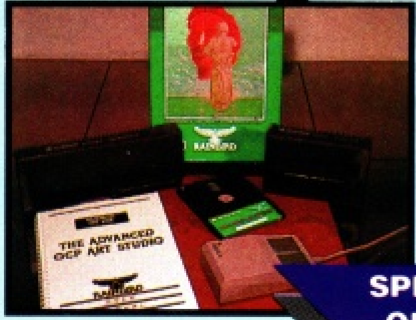
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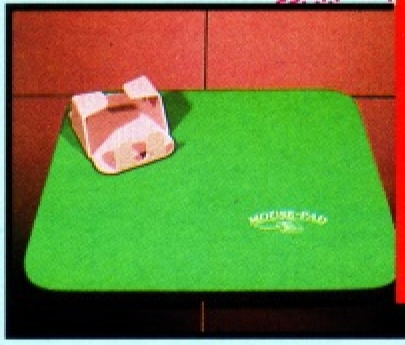
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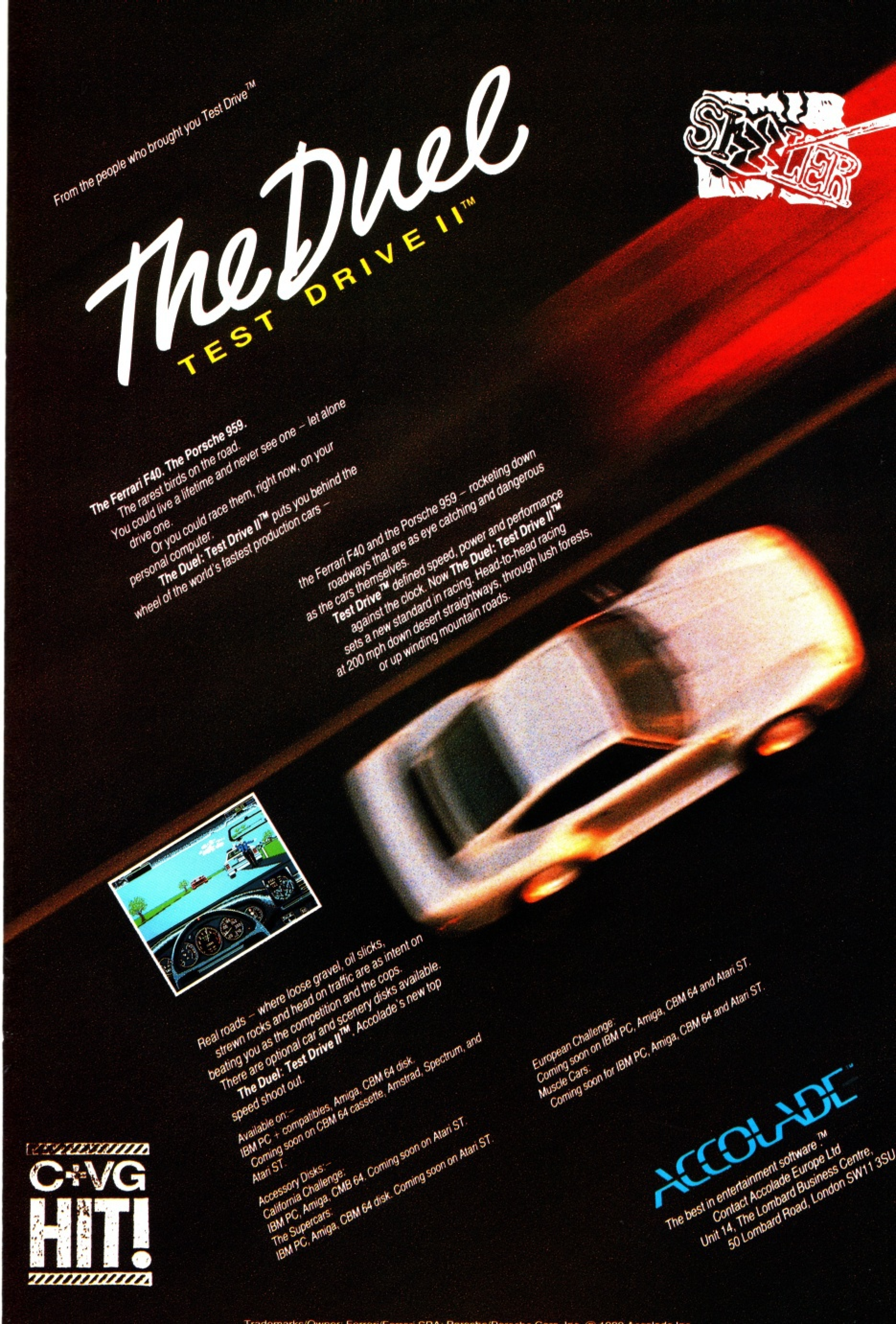
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Brought to book

SD Microsystems has updated its popular book-keeping package. John Taylor puts it through its paces.

General Ledger 6128 is a computerised book-keeping program for the Amstrad CPC from SD Microsystems. Many small business owners will already be familiar with version one of General Ledger. Version 6128 is similar in operation; but there are a few minor changes and added options. The new major addition is a computerised Standing Orders option to deal with regular monthly outgoings and direct debit.

General Ledger 6128 comes with a program to convert version one files over to the new format but files must be structured the same in both programs for this to work. Many small businesses may already be using the whole range of Small Trader modules from SD Microsystems. If so, General Ledger can be completely integrated. The manual fully explains the best way to combine all the programs in the system. This is only SD Microsystems' opinion; users will have to tailor the system to suit their own needs but it is nice to know that help is at hand.

General Ledger 6128 is a menu driven program, entered by personal password for security. To help users learn quickly, there is a sample file provided on disc, although this is a sample program, to use it is best to experiment for a while before starting work. There are ten menu options, F1-F0 and these are arranged in likely order of need. Users must first enter their bank balance before moving on to set up the ledger via option F1, the Account Code/Utilities option. This option contains 50 preset codes which are divided into specific categories. For example, codes 6-9 represent Direct Costs and can be given headings to suit the user's particular need.

Once the ledger is structured to fit the business, it is time to enter the



data. Users must decide how long their trading period is going to be, perhaps a month and then start the ledger at the beginning of a trading period. This is not an absolute necessity but it will help to integrate the system more smoothly, particularly if the trading period begins at the start of the new financial year. Data entry is very easy indeed. Option F2 brings two windows onto the screen. The first window lists the possible transactions. The user must select one and then enter the date, the rest of the required data, including the amount, which heading it belongs with and which V.A.T. code the entry has. The only thing to remember is that entries can not be changed so everything must be double-checked before the data is confirmed.

General Ledger 6128 can create several different types of report depending on what sort of overview the user needs. Obviously, at some point a complete report listing all transactions is going to be necessary. General Ledger is perfectly capable of this. General Ledger 6128 also has the facilities to generate reports detailing Bank transactions as well as V.A.T. and Cash summaries. Users can focus on just one account file from codes 1-30 to see what entries have gone into the file, although this report does not specify entries which have been posted from the file. Separate listings can be given to show all the receipts and payments in a given file. General Ledger can provide a Trial Balance as well as the all-important Trading, Profit and Loss Account. All these reports can be sent directly to the printer.

General Ledger also provides the facility to make a Year To Date/End Summary. Users must remember to use this option only after all files have been cleared from memory and also to enter files into the summary in strict chronological order. This is the only instance where the data must be entered in a sequential order. When inputting entries into the ledger, there is no need to make additions in any particular order. The ledger is capable of sorting by date via option F8. Sorting is through all entries but users may specify the transaction number to start with and so avoid wading through all the entries in the file.

Ease of use is what the customers of SD Microsystems have come to expect and this program is not likely to disappoint in that respect. The manual is particularly helpful, with full explanations given in plain English.

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Learning to landscape

Dean Cracknell delivers the final batch of his three part fractal bonanza.



Having produced two programs that calculate the fractal landscape data, we now turn our attention to how the data is to be displayed. The original program used isometric projection to produce a 3D image, but this lacked perspective and did not allow us to see the landscape from different viewing positions. By using these listings you will be able to move around the landscape, and even look underneath.

Although the projection uses machine code, the program still takes a couple of minutes to plot, so "flying around the landscape" is the phrase I was trying to avoid here.

Perspective and 3D Projection: The machine code in Program 1 pretends that the CPC monitor screen is a window through which you are looking at the fractal landscape. It does this by projecting the landscape onto that window.

To illustrate this, look out of a nearby window at the scene on the other side. Sunlight, reflected off the scenery, passes through the glass and enters your eye. Here lenses and light sensitive cells pass the image on to the brain where the most powerful image processing program ever written takes over and we 'see' the image. If you draw the scene on the glass just as you see it, then this is what the CPC is trying to create on the monitor screen. To achieve this we need to know exactly what the image on the glass would look like.

Figure (i) illustrates this: the triangle formed between the viewer, the top of the object and the horizontal has the same proportions as the triangle formed by the viewer and the image on the glass, but a different size. This means that if we divide one of the sides of the larger triangle by one of its other sides, the resulting number will be the same as the same ratio produced by the smaller triangle, or to put it more simply:

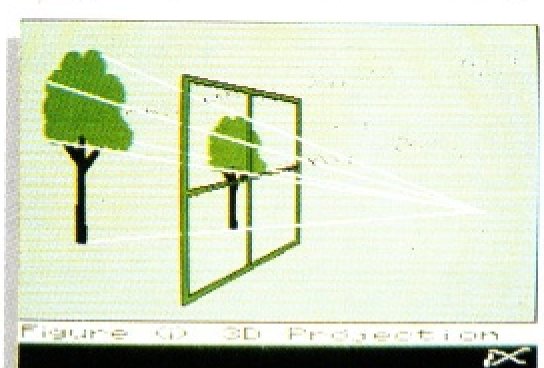


Figure 1.

$$\frac{\text{Height on glass}}{\text{Distance to glass}} = \frac{\text{Height of object}}{\text{Distance to object}}$$

By quickly re-arranging this little equation, it is possible to calculate the height that the object will have on the glass as long as we know all the other numbers, which we do:

$$\text{Hglass} = \text{Dglass} \times \frac{\text{Hobject}}{\text{Dobject}}$$

This simplified form lacks polish, such as scaling and an offset for the height of the viewer above the ground (his elevation), fully expanded the formula becomes:

$$\text{Hglass} = \text{Hscale} \times \text{Dglass} \times \frac{\text{Elevation} - \text{Hobject}}{\text{Dobject}}$$

Normally, the distance from the viewer to the glass will be fixed, so this can be incorporated into the 'Hscale' constant. Having considered the projection of the height of the object, the width is treated in the same way and produces a similar equation:

$$\text{Xglass} = \text{Xscale} \times \text{Dglass} \times \frac{\text{Xposition} - \text{Xobject}}{\text{Dobject}}$$

As these two equations are similar, they can be combined into a general

```
1050 '    V1.1 Release Issue [90]
1290 GOSUB 3220 ' set m/code data [76]
1350  yoff=(ymax+8)\16: yoff=ystart+yoff*elev\16: GOSUB 3220 ' initialise m/code
 data [4A]
1410  IF redraw THEN IF drawit THEN GOSUB 2940 ELSE GOSUB 3140 [F6]
2020 IF no=true THEN LOAD "fra-code.bin",&9100 [FE]
2220 p=0: ptop=6: pmax=ptop+1 [30]
2290   ON p GOSUB 2350,2450,2520,2700,2760,2840: p=p+1 [9F]
2680 ' [A6]
2690 ' Sub 9.5: Disc Saving [A9]
2700 IF i$="f" THEN frm=(frm+1) MOD 10000: p=pmax [81]
2710 IF i$="F" THEN frm=(frm+99) MOD 100: p=pmax [88]
2720 IF i=224 THEN SAVE "!s"+RIGHT$(STR$(frm+10000),4)+".scr",b,&C000,&4000: frm
=frm+1: p=pmax [5B]
2730 RETURN [73]
2740 ' [9C]
2750 ' Sub 9.8: change colours [9F]
2760 IF i$=":" THEN p=pmax: IF back THEN backc=(backc+1) MOD 16 ELSE skyc=(skyc+
1) MOD 16 [E4]
2770 IF i$="*" THEN p=pmax: IF back THEN backc=(backc+15) MOD 16 ELSE skyc=(skyc
+15) MOD 16 [6C]
2780 IF i$=";" THEN p=pmax: IF back THEN horizonc=(horizonc+1) MOD 16 ELSE seac=
(seac+1) MOD 16 [6A]
2790 IF i$="+" THEN p=pmax: IF back THEN horizonc=(horizonc+15) MOD 16 ELSE seac
=(seac+15) MOD 16 [32]
2800 IF p=pmax THEN redraw=true [96]
2810 RETURN [6F]
2820 ' [98]
2830 ' Sub 9.4: flag changes [9B]
2840 IF i$="B" THEN showsea= (showsea+1) MOD 3: p=pmax [9B]
2850 IF i$="b" THEN showsea= (showsea+2) MOD 3: p=pmax [C5]
2860 IF i$="W" THEN pfill=(pfill+2) MOD 3: p=pmax ELSE IF i$="w" THEN pfill=(pfi
ll+1) MOD 3: p=pmax [34]
2870 IF j$="C" THEN contor = NOT contor: p=pmax [7B]
2880 IF j$="O" THEN back=NOT back: p=pmax: redraw=true [56]
2890 IF j$=CHR$(13) THEN drawit=NOT drawit: redraw=true: p=pmax [13]
2900 IF p=pmax AND drawit THEN redraw=true [D6]
2910 RETURN [71]
2920 ' [9A]
2930 ' Sub 10: plot shape [9D]
2940 GOSUB 3320 ' plot horizon [83]
2950 |PLOT.LAND,yposn,base [B4]
2960 RETURN [80]
2970 ' [A9]
2980 ' Sub 11: project x-y [AC]
2990 ky=y-yposn: ks=SGN(ky): ky=ABS(ky) [1E]
3000 IF ky=0 THEN ky=1E-38 [FF]
3010 zx=xoff+(xscale*(x-xposn))/ky [C9]
3020 zy=yoff+(yscale*(z-elev))/ky [21]
3030 RETURN [66]
3040 ' [8F]
3050 ' Sub 12: draw corners [92]
3060 x= 0: y=st: GOSUB 2990: x(0)=zx: y(0)=zy [BE]
3070 x= 0: y=64: GOSUB 2990: x(1)=zx: y(1)=zy [F4]
3080 x=64: y=64: GOSUB 2990: x(2)=zx: y(2)=zy [14]
3090 x=64: y=st: GOSUB 2990: x(3)=zx: y(3)=zy [76]
3100 |DRAW.POLY,y(0),x(0),y(1),x(1),y(2),x(2),y(3),x(3) [DA]
3110 RETURN [62]
3120 ' [8B]
3130 ' Sub 13: plot frame [8E]
3140 GOSUB 3320: IF yposn<0 THEN st=0 ELSE st=yposn-1 [CE]
3150 k0=0: k1=sealevel: k2=255: xsize=size: ysize=size-st+1 [39]
3160 z=0:          |GPEN,0:  MOVE 0,0: GOSUB 3060 [EE]
3170 z=sealevel: |GPEN,3:  MOVE 0,0: GOSUB 3060 [A4]
3180 z=255:        |GPEN,15: MOVE 0,0: GOSUB 3060 [A2]
3190 RETURN [7A]
3200 ' [87]
3210 ' Sub 14: Set m/code data [8A]
3220 |ELEVATION,elev [99]
3230 |X.POSN,xposn:   |Y.POSN,yposn  [3F]
```

Program 1.

```
3240 |X.OFFSET,xoff:  |Y.OFFSET,yoff [D8]
3250 |X.SCALE,xscale: |Y.SCALE,yscale [EA]
3260 |SEA.FLAG,showsea [CE]
3270 |CONTOR.FLAG,contor [3D]
3280 |WIRE.FLAG,pfill [CC]
3290 RETURN [7C]
3300 ' [89]
3310 ' Sub 15: draw sea/horizon [8C]
3320 ORIGIN 0,0,xstart,xend,yend,ystart [D4]
3330 |GPAPER,skyc: CLG: ysea=yoff: IF ysea>yend THEN ysea=yend ELSE IF ysea<ysta
rt THEN ysea=ystart [04]
3340 IF back THEN |GPAPER,backc: |GPEN,horizonc: CLG: MOVE 0,ysea: DRAWR 640,0:
GOTO 3390 [EA]
3350 ORIGIN 0,0,xstart,xend,ysea,ystart [0A]
3360 |GPAPER,seac: CLG [26]
3370 ORIGIN 0,0,xstart,xend,yend,ystart [E3]
3380 |GPAPER,0  [0E]
3390 RETURN [7E]
```

purpose equation that can be used for both. The RSX command :PROJECT handles this equation for both the X and H projections. The X and H values come directly from the Fractal data, all the other values are held as variables in the program and can be changed at will.

There are limitations to this kind of projection, in that you cannot project the image when the distance from the viewer to the object (Dobject) is zero, as you will get a "Divide by zero" error. In the real, real world this problem is solved by projecting the image into a curved surface, the back of your eye, and then using the brain to compute the true image.

The machine code loader of program 1 loads-up the second half of the final machine code, adding a further 15 RSX's to the existing 12. Save and run this program, which will poke the code into memory and save it.

The second listing, Program 2, should be typed in as seen, without changing the line numbers and saved as "part-2".

Now you should have a complete version of the full-blown Fractal Landscape Generator, when you run the program, the first landscape will be calculated and displayed as a countermap as before, but now the image display will contain a landscape of sea and sky with three boxes drawn in true perspective, these boxes represent the lowest point, sealevel and the highest point of any landscape, using them as a guide, an idea of where the final image will be can be deduced, pressing [ENTER] or [RETURN] will then draw the full picture. From here on you can move around the landscape using the keys already described or use the new functions added by the latest additions, these new keys are as follows:

[O]: Switch On and Off Sea and Sky background.

[:]: Changes the Sky/Back-

```
1000 ' m/code loader for file:FRA-B.BIN [81]
1010 ' [84]
1020 ' by DEANCRACKNELL1988 [87]
1030 ' [8A]
1040 MEMORY &90FF [96]
1050 llen=&590: strt=&9767: nm$="FRA-B.BIN" [A6]
1060 lsum=0: csum=0: lnum=3000: ii=0 [1F]
1070 READ a$: amp$=CHR$(38): PRINT "Creating ";nm$;" "; [24]
1080 WHILE a$<>"####" [B3]
1090  FOR ai=1 TO LEN(a$) STEP 2: PRINT CHR$(192+(ai MOD 4));CHR$(8); [76]
1100   aa=VAL(amp$+MID$(a$,ai,2)): POKE strt+ii,aa: lsum=lsum+aa: ii=ii+1 [8D]
1110  NEXT ai: GOSUB 2000 [80]
1120  READ a$ [3F]
1130 WEND: PRINT " " [57]
1140 READ a$: ccsum=VAL(amp$+a$) [A8]
1150 IF ccsum<>csum THEN PRINT "ERROR in Final C/SUM": END [72]
1160 PRINT "All Code correct, saving to disc" [A8]
1170 SAVE "!"+nm$,b,strt,llen [67]
1180 END [3B]
2000 ' line checksum [82]
2010 READ a$: llsum=VAL(amp$+a$) [B5]
2020 IF llsum<>lsum THEN PRINT "C/SUM ERROR in LINE";lnum: END [D8]
2030 csum=(csum MOD &7000)+lsum: lnum=lnum+10: lsum=0 [30]
2040 RETURN [68]
3000 DATA 33442d50726f6a65,2a4 [C9]
3010 DATA 6374696fee50524f,38e [A8]
```

Program 2.

◄

```
3020 DATA 4a4543d444524157,2d4 [AB]
3030 DATA 2e504f4cd9504f4c,2dd [9C]
3040 DATA 592e46494ccc504c,2ca [EB]
3050 DATA 4f542e504f4cd950,2e5 [28]
3060 DATA 4c4f542e4c414ec4,2bc [95]
3070 DATA 454c45564154494f,259 [F3]
3080 DATA ce582e4f46465345,2c7 [21]
3090 DATA d4592e4f46465345,2ce [55]
3100 DATA d4582e504f53ce59,373 [9D]
3110 DATA 2e504f53ce582e53,2c7 [E6]
3120 DATA 43414cc5592e5343,2b2 [38]
3130 DATA 414cc55345412e46,29f [09]
3140 DATA 4c41c7434f4e544f,2d7 [ED]
3150 DATA 522e464c41c75749,2ba [27]
3160 DATA 52452e464c41c700,25f [26]
3170 DATA 00000000fe06c0d5,299 [56]
3180 DATA dd6e00dd6601dd5e,3ca [79]
3190 DATA 04dd5605ebcdfc94,484 [26]
3200 DATA eba719dd5e08dd56,421 [FC]
3210 DATA 09cdc694dd5e06dd,44e [28]
3220 DATA 5607d5a7cb2acb1b,3b4 [1E]
3230 DATA 19d1cd7e94dd5e02,406 [3D]
3240 DATA dd560319ebdd6e0a,38f [F2]
3250 DATA dd660b732372ebd1,412 [D8]
3260 DATA c9d5f5dde53e06dd,576 [69]
3270 DATA 21319ded533b9dcd,3d4 [4B]
3280 DATA f397dde1f1d1c9d5,6a8 [03]
3290 DATA f5dde53e06dd213d,436 [28]
3300 DATA 9ded53479dcdf397,518 [72]
3310 DATA dde1f1d1c9fe08c0,60f [83]
3320 DATA dde5dd5e00dd5601,431 [E7]
3330 DATA dd6e02dd6603e5d5,44d [43]
3340 DATA cdc0bb0603c5dd5e,451 [46]
3350 DATA 04dd5605dd6e06dd,36a [89]
3360 DATA 6607cdf6bb110400,300 [DF]
3370 DATA dd19c110e8d1e1cd,52e [92]
3380 DATA f6bbdde1c93e08dd,55b [5F]
3390 DATA e5dd21f79ccd6498,53f [A1]
3400 DATA dde1c9fe03c0cdd5,5ea [30]
3410 DATA 95dd4e00dd4601dd,3c1 [42]
3420 DATA 6e02dd6603dd5e04,2f5 [DC]
3430 DATA dd5605cdc698c9c5,4f1 [10]
3440 DATA d5e5ed5b079da7ed,53a [BC]
3450 DATA 5222379d22439de1,32b [DD]
3460 DATA d1e5d5ed533d9dcd,5728[D8]
3470 DATA 37947ecd50953213,340 [50]
3480 DATA 9d32319d6f260022,254 [D2]
3490 DATA 0b9d11f79ccd4e98,3ff [33]
3500 DATA 11f99ccd3898e1d1,4f5 [B1]
3510 DATA c1c5d5e509ebed53,574 [17]
3520 DATA 3d9dcd37947ecd50,40d [91]
3530 DATA 9532149d32319d5f,2d7 [F0]
3540 DATA 16002a0b9d19220b,12e [CE]
3550 DATA 9d11fb9ccd4e9811,409 [9A]
3560 DATA fd9ccd3898d1e1c1,5a9 [F8]
3570 DATA c5d5e509e5ed5b07,4bc [B3]
3580 DATA 9da7ed5222379d22,39b [38]
3590 DATA 439de1e5ed5b3d9d,4c8 [14]
3600 DATA cd37947ecd509532,3fa [85]
3610 DATA 159d32319d5f1600,227 [07]
3620 DATA 2a0b9d19220b9d11,1c6 [DC]
3630 DATA ff9ccd4e9811019d,3fd [C9]
3640 DATA cd3898e1d1d1c1ed,5ce [02]
3650 DATA 533d9dcd37947ecd,410 [A9]
3660 DATA 509532169d32319d,2ca [62]
3670 DATA 5f16002a0b9d19cb,22b [5D]
3680 DATA 2ccb1dcb2ccb1d22,315 [47]
3690 DATA 0b9d11039dcd4e98,30c [F5]
3700 DATA 11059dcd38983a2b,2b5 [3D]
3710 DATA 9dfe00280dfe0128,2f7 [A7]
3720 DATA 093a0b9d473e5f90,25f [FB]
3730 DATA 3025cdea9528203a,323 [2F]
3740 DATA 0b9dcd63953a2f9d,373 [1B]
3750 DATA fe002810f5cd4f9a,3e1 [80]
3760 DATA f1fe01280af53e01,356 [A3]
3770 DATA cddebbf1cd9c98c9,621 [8F]
3780 DATA fe02c0cdd595dd5e,532 [2C]
3790 DATA 02dd5603210000a7,200 [AE]
3800 DATA ed52faf199010000,3c4 [2D]
3810 DATA 1802d5c1ed43309a,3aa [DE]
3820 DATA ed53079ddd4e00dd,3ec [81]
3830 DATA 4601214000a7ed42,27e [3F]
3840 DATA 22329aed5b329ae5,3e7 [5F]
3850 DATA d5c5cdc698c1d1e1,638 [29]
3860 DATA eba7ed42ebf20e9a,546 [7A]
3870 DATA a7ed42e5ed5b309a,4cd [9A]
3880 DATA a7ebed52e1fa0a9a,550 [2E]
3890 DATA c900000000fe08c0,28f [12]
3900 DATA f5dde521f79c0616,487 [F6]
3910 DATA dd7e007723dd2310,305 [AD]
3920 DATA f7dde1f1cd4f9ac9,625 [C1]
3930 DATA cd7b9cdd21f79cfd,572 [BF]
3940 DATA 214c9dcdff9bdd21,46f [BC]
3950 DATA f99cfd21549dcdff,570 [4D]
3960 DATA 9bdd21ff9cfd2150,4a2 [93]
3970 DATA 9dcdff9bdd21019d,4a0 [99]
3980 DATA fd21589dcdff9b2a,4a4 [4A]
3990 DATA 4c9ded5b549de5d5,4dc [60]
4000 DATA a7ed52380806023e,26c [27]
4010 DATA 01d1e1180606013e,216 [77]
4020 DATA 02e1d132609d7832,38d [4B]
4030 DATA 629ded53749d227a,3ec [16]
4040 DATA 9d2a509ded5b589d,3f1 [F3]
4050 DATA e5d5a7ed52380806,3e6 [F3]
4060 DATA 043e03d1e1180606,21b [4A]
4070 DATA 033e04e1d132649d,32a [F7]
4080 DATA 7832669ded53769d,400 [97]
4090 DATA 227c9ded5b7c9d2a,3c6 [68]
4100 DATA 7a9de5d5a7ed5238,4ef [C4]
4110 DATA 0b3a609d473a649d,2c4 [C4]
4120 DATA d1e118093a649d47,355 [87]
4130 DATA 3a609de1d132609d,418 [CF]
4140 DATA 78325c9d22789ded,3c7 [7C]
4150 DATA 537a9d2a769ded5b,3ef [FF]
4160 DATA 749dd5e5a7ed5238,4e9 [76]
4170 DATA 0b3a629d473a669d,2c8 [9E]
4180 DATA d1e118093a669d47,357 [01]
4190 DATA 3a629de1d132629d,41c [37]
4200 DATA 7832689d227e9ded,3d9 [08]
4210 DATA 53749ded5b7a9d2a,3ed [61]
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4220 DATA 749dd5e5a7ed5238,4e9 [6C]
4230 DATA 0b3a609d473a629d,2c2 [60]
4240 DATA d1e118093a629d47,353 [27]
4250 DATA 3a609de1d132609d,418 [D7]
4260 DATA 7832649ded537a9d,402 [B9]
4270 DATA 227c9ded5bf79ced,503 [C1]
4280 DATA 53809ded5bff9ced,540 [58]
4290 DATA 53829ded5bf99ced,53c [76]
4300 DATA 53849ded5b019ded,447 [4C]
4310 DATA 53869d110000ed53,2c7 [69]
4320 DATA 6c9ded536e9ded53,494 [2B]
4330 DATA 709ded4b789dc50b,42a [CF]
4340 DATA 2a6c9ded5b7e9d19,3af [EF]
4350 DATA 226c9dd1d5a7ed52,4b7 [E7]
4360 DATA 3809226c9d3a689d,2ab [B5]
4370 DATA cd1e9c2a6e9ded5b,404 [01]
4380 DATA 7c9d19226e9dd1d5,405 [4C]
4390 DATA a7ed523809226e9d,354 [79]
4400 DATA 3a649dcd1e9c2a70,35c [97]
4410 DATA 9ded5b7a9d192270,3a7 [31]
4420 DATA 9dd1d5a7ed523809,46a [2D]
4430 DATA 22709d3a609dcd1e,351 [C0]
4440 DATA 9c3a5c9dcd1e9cc5,41b [85]
4450 DATA e1110100a7ed52e5,3be [3B]
4460 DATA c1309de1cd7b9cc9,51c [D3]
4470 DATA dd5e00dd5601dd6e,3ba [59]
4480 DATA 04dd6605a7ed52cd,3ff [AC]
4490 DATA 0695fd7500fd7401,37f [F5]
4500 DATA fd7302fd7203c9c5,472 [1F]
4510 DATA d5fe04200d2a869d,351 [8F]
4520 DATA ed5b5a9d1922869d,39d [7F]
4530 DATA 1833fe03200d2a82,225 [07]
4540 DATA 9ded5b529d192282,391 [DD]
4550 DATA 9d1822fe02200d2a,22e [1D]
4560 DATA 849ded5b569d1922,397 [D1]
4570 DATA 849d1811fe012021,28a [5A]
4580 DATA 2a809ded5b4e9d19,393 [8E]
4590 DATA 22809d1800ed5b80,31f [C4]
4600 DATA 9d2a849dcdeabbed,547 [9D]
4610 DATA 5b829d2a869dcdf6,48a [4F]
4620 DATA bbd1c1c9ed5bff9c,5f9 [D9]
4630 DATA 2a039ded53039d22,2cc [A0]
4640 DATA ff9ced5b019d2a05,3b0 [14]
4650 DATA 9ded53059d22019d,33f [BD]
4660 DATA c9112b9dcdde9cc9,4b2 [F2]
4670 DATA 11359dcdde9cc911,404 [3E]
4680 DATA 3f9dcdde9cc91133,430 [D0]
4690 DATA 9dcdde9cc911419d,49c [C8]
4700 DATA cdde9cc911459dcd,4d0 [44]
4710 DATA de9cc911399dcdde,4d5 [CF]
4720 DATA 9cc911079dcdde9c,461 [FE]
4730 DATA c9112d9dcdde9cc9,4b4 [47]
4740 DATA 112f9dcdde9cc9fe,4eb [B2]
4750 DATA 01dd6e00dd660128,2b8 [49]
4760 DATA 0afe02c01a772313,291 [FF]
4770 DATA 1a77c9eb732372c9,416 [11]
4780 DATA 00,000 [0E]
4790 DATA "####",0f2a [68]
```

ground colour.

[;]: Changes Sea/Horizon colour.

The sequence of colours is the same as the colour scale on the right-hand edge of the screen, using SHIFT, the colours step backwards.

[ENTER]: Switch between Box-frame and Full Display, for speed, always switch back to Box mode before changing anything (it's quicker).

[L]: Multiply Level by 2. Level is the resolution of the projected image, for speed use a lower value, for detail use a higher number, the maximum resolution is 64, which is the resolution of the contor map.

[W]: Switch between: Wire-frame and Solid image. Wire frame is at least 10 times faster to plot, so use this to adjust your viewing position, then switch to Solid for your final image.

[COPY]: Save Projected Frame to disc or tape as file "SO-123.SCR", where 123 is the frame number. Tape users should press RECORD and PLAY before pressing "COPY", as tape messages are supressed.

[F]: Increase the Frame number by 1, SHIFT 1 decreases the number.

[C]: Switch between Contor-Image and Shaded Image for the projected image, in contor mode, the colours are the same as the contor map, in shaded mode the colours are chosen to represent the effect of the sun shining over your left shoulder.

[B]: Switch between: Below Sea; Don't Show Sea and Show Sea. These determine how the sea is represented, Don't Show Sea and Show Sea only affect how the Wire-frame image is drawn and look the same in Solid-image.

To check that the program ran as expected on a CPC464, I borrowed one and found (to my surprise) that it runs 7% faster on a CPC464 than it does on my CPC6128 – does anyone have copies of BASIC V1.0 ROM's to spare? I hope you've all enjoyed this series and may your fractals be fruitful. ●

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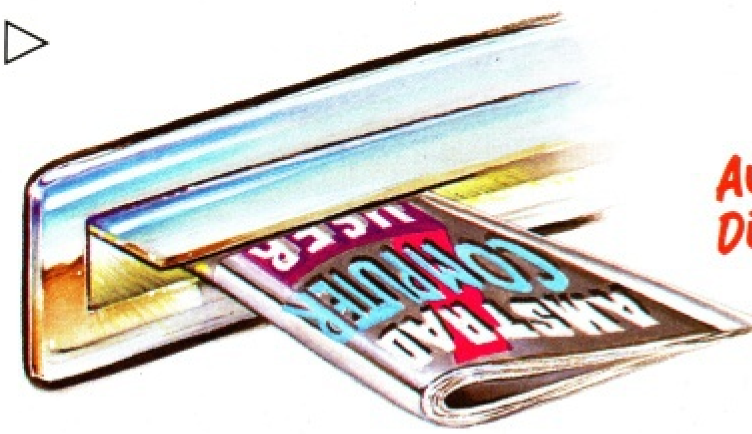
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Boot up the bulletin board

That shadowy figure Gordon Bates introduces you to the world of the BBS and a passport to endless hours of phone fun.



This month, we're going to delve into the world of private Bulletin Board Systems, but before we do, I must correct a mistake that crept into last month's masterpiece (Lord knows how!) In the section on the charges for using Micronet, the impression was given that the system is free to use between 6pm and midnight. Sorry, folks, this isn't the case.

Just to put it straight, here's a little table that explains it all:

6pm to Midnight: 1p per minute

Saturday 1pm to Midnight, Sunday all day, Midnight to 8am: all Micronet pages are free, but Prestel pages are at 1p per minute.

All other times: all Micronet and Prestel pages 7p per minute.

OK, now that that's out of the way, let's look at the (usually) free Bulletin Board Systems (BBSs) that seem to be in every corner of the country. They're normally very different from the viewdata systems as exemplified by Micronet and Prestel. Generally, they're what's known as 'scrolling' systems. That is, instead of presenting their information in nicely laid out pages, one at a time, the information that's hurtling down your phone line scrolls up the screen, much like a long listing (but much, much slower!) Other differences are in the 'protocols' that they require.

Now, remember, in this column, we don't go in for the black magic approach, so it's time for a little explanation about these protocol thingies. When a modem talks to another modem, each end needs to understand what the other is saying. So, they establish a protocol (from the diplomatic term) to accomplish this. First, there may be a START BIT, or perhaps two. Then, there will be the DATA BITS – or the portion of the message that actually contains the character being sent. This will be either 7 or 8 bits. Then, optionally, there may be PARITY BITS – they're a fairly redundant method of error checking, and needn't concern us too much here. Finally, there may be STOP BITS, which serve to tell the remote modem computer that that particular character is finished (Gerraway, they all cried – maybe that's why they're called stop bits!)

In this country, you're only ever likely to come across two settings for all of these strange bits. They are a) No start bits, 7 data bits, even parity, and one stop bit – usually shown as 7B1 – this is also sometimes called the Prestel setting, since that's what Prestel (and Telecom Gold) use, and b) No start bits, 8 data bits, No parity, and one stop bit – usually shown as 8N1 – which is what the majority of private BBSs use.

Now that we've discussed this, forget it all – it's really not that important. Mostly, all you need to do is look at a listing of bulletin board phone numbers (there are leads, and I've appended a few here) and the settings will be shown. All you need to do is set your software to the right setting before you go online. So, as you can see, it doesn't really matter whether or not you understand it, as long as you remember to set the right one.

OK, so now you've sorted out a likely looking BBS, preferably local to you at first (we don't want the editor's

BT shares growing too fast, now do we?), and you've booted up your comms package. You've made sure that you've set the right protocol settings, and you're ready to go. Dial the number, and, BT willing, you'll shortly hear your modem legging onto the system. If it's a popular one, then you might hear the engaged tone rather a lot before you get even this far. This is a good sign. It means that the BBS is very popular, and therefore, must be very good.

So keep on keeping on, and eventually you'll get on. Depending what BBS software the sysop (that's comms speak for system operator, or the person who actually runs the thing) is using, you could be met with any number of welcome screens, but a few things will be common to most of them.

Firstly, you'll nearly always see the name of the board up there in lights – which is as good a check as you'll get that you've got the right number. Next, you may be asked whether or not your terminal is capable of ANSI GRAPHICS. Sorry, friends, but I'm afraid that, thus far, the good ol' CPC isn't capable of displaying these delights. So, you'll have to answer NO! Once that's out of the way, you're going to be asked for your name, and then a password. Be warned, most sysops don't allow nicknames, aliases, or suchlike, but need your real Christian name and surname. Your password is up to you, but, it's probably better that you don't use the password you use on Prestel, or any other on-line service that you pay for.

Pick something that you can remember, but which no-one else will be able to guess. I use three passwords for private BBSs, and keep another ten or so for the pay-off services I use. They are mostly a jumble of letters and numbers, with the odd bit of punctuation thrown in for good measure, and don't mean anything much. The beauty is, though, that I can remember them. Also, I change all my passwords at least once every three months, and more regularly on a service for which I pay. I'd advise you to get into that habit, even if you don't pay – it'll pay dividends.

OK, once you've got past the name and password stage, you may be asked to fill in a questionnaire as a new user, so the sysop can validate you. All this means is that you will maybe have a 20 minute time limit on your first visit, but once you're validated, your limit may be limitless, if you see what I mean. It varies from BBS to BBS, normally defaulting to around the two hour per day mark.

With full validation comes full privileges, which means that you can both upload and download software (please don't forget to upload something if you've downloaded a proggie – it's only courteous), and also visit areas of the BBS that you may not have been able to see the first time you logged on. Anyway, this is your first time on, so let's not get carried away.

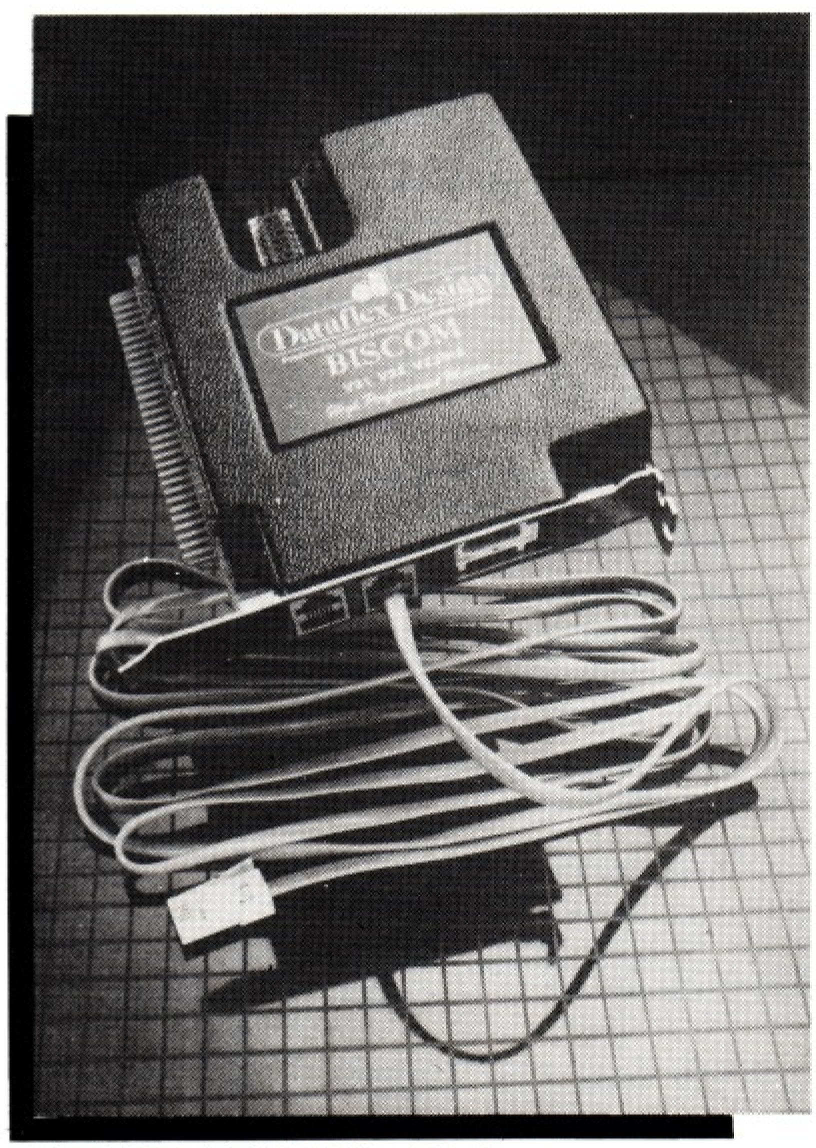
You'll normally be presented with some kind of main menu, and one of the entries will be marked 'messages' or something similar. This is the area to go and have a look at. You'll be able to read messages left by other users, and, if you feel brave enough, you'll probably be allowed to leave one or two yourself. Please do have a go, and either ask a question, or answer one. If you don't, then no-one will write to you, and the whole point of being online goes up in smoke.

OK, find your way back to the main menu, and have a look round the board. Check out the download areas, the special interest groups, and anything else the board contains. Just a peek, mind, nothing too strenuous, 'cos now you're going to log off. Find your way back to the main menu, and you'll see an option marked GOODBYE, or LOG-OFF, or similar. Select this one, and the chances are that you'll be asked to comfirm your choice. Hit 'Y', and next, you'll be asked if you would like to leave a message for the sysop. Again, hit 'Y', 'cos you do.

Don't argue, yes you do! If you like what you've seen on his system, leave a message saying so, and ask if you can be upgraded to full access privileges. The sysop will be so pleased that he'll grant you them. If you aren't that impressed with the system, just thank him for the use of the board for the time you've been on, and say that you probably won't be back – but do it nicely. Remember, the BBS you've just been on is someone's hobby, and has probably cost him plenty of dosh and bags of time – he'll be proud of it, so don't be hurtful.

And that's about it, really, there's nothing to it. Any of you who have already been through this process will probably be bored sick by now, but I make absolutely no apology for that. Everyone has to start somewhere, and a local BBS is as good a place as any. I've made this article as easy as possible to follow, and as comprehensive as space will allow, purely because I'd like to see lots more people using their CPCs to get online – it's a great way to use a smashing 'poster, and can be very cheap entertainment.

Over the next few weeks I will be printing lists of BBSs you can contact for you to cut out and keep. ●



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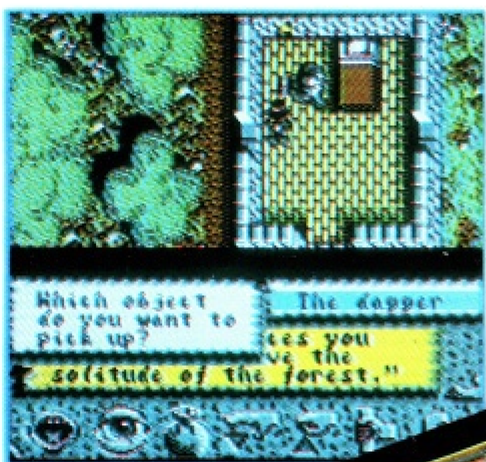
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